# An Input-Output Table of Germany in 1936

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# An Input-Output Table for Germany in 1936: A Documentation of Results, Sources and Research Strategy

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## 1. Introduction

This contribution presents the final results of a long-term research project which aimed to construct an input-output table for Germany in 1936. Our research can be seen as follow-up or even completion of the activities of the German Statistical Office (Statistisches Reichsamt, StRA) which worked on a "matrix of economic interdependencies" (Volkswirtschaftliche Verflechtungstabelle) for Germany as early as the 1930s.[1] In connection with rearmament, however, this endeavour was discontinued.

Originally, the Statistical Office had especially designed the German industrial census of 1936 and its forerunner of 1933 to compile an input-output-table for Germany as a basis for managing the business cycle.[2] The StRA never finished this table, though. Instead, the census data were used for constructing detailed material balance sheets, which served as a statistical basis for preparing the war.[3] Using the hitherto secret archival records and additional statistical information, we finally fulfilled the original plan of the German Statistical Office of constructing the envisaged input-output table. As the archival records of the German industrial census of 1936 became the core of our endeavour, we will discuss this source in particular.

1 For an Anglo-American audience it has to be emphasized that this endeavour was pursued independently of Leontief's works which had been based on the US industrial census (*A.J. Tooze*, Statistics and the German State, 1900-1945, Cambridge 2001, pp. 200-207; on the history of input-output tables see *R. Stäglin*, Zur Entstehungsgeschichte der Input-Output-Tabellen, in: Konjunkturpolitik 14, 1968, pp. 251-259). The statisticians of the StRA were well aware of Leontief's achievement, though. A note on a loose piece of paper referring to Leontief's 1936-article (Quantitative Input and Output Relations in the Economic System of the United States, in: The Review of Economic Statistics, Vol. XVIII, August 1936) is to be found in the archival record Bundesarchiv Berlin-Lichterfelde, Federal Archive (= BA) R3102 2705. We exploited this voluminous file extensively for estimating non-industrial parts of our research. It contains most of the hand-written work sheets of the unfinished input-output table of the StRA.

2 See work plan for the continuation of the industrial statistics ("Arbeitsplan für die Weiterführung der Industriestatistik") of 1934, where the guidelines for the 1936-census were put forward (BA R3102 2992) and furthermore the letter of the StRA to the Minister of Economics of 6.02.1936 (BA R3102 2993). In this letter written by Wilhelm Leisse (head of the dept. VII of the StRA and later of the RWP) the principles of the 1936 census were summarized. The 1936-census was based on the experience of its forerunner in 1933, however, with more emphasis on "Wehrpolitik" (defence policy) than on economic policy.

3 In December 1937 the Minister of Economics clearly demanded priority for using these statistics as means of organizing the coming war and the so-called "Mob-Vorbereitung" (Mob = Mobilisierung, i.e. mobilisation of the army). The letter (dated 28.12.1937) of the Minister to the President of the StRA for the attention of Wilhelm Leisse contained detailed instructions, among others: "Ausarbeitungen für Veröffentlichungen, die Durchführung von neuen Erhebungen sowie Arbeiten, die nicht der Mob-Vorbereitung dienen, sind zurückzustellen, wenn dadurch diese wehrwirtschaftlichen Arbeiten irgendwie behindert werden." (BA R3102 2993 F 14). *Tooze*, Statistics, pp. 215 ff.; *R. Fremdling/R. Stäglin*, Die Industrieerhebung von 1936: Ein Input-Output-Ansatz zur Rekonstruktion der volkswirtschaftlichen Gesamtrechnung für Deutschland im 19. und 20. Jahrhundert – ein Arbeitsbericht, in: VSWG 90, 2003, pp. 416-428; *R. Fremdling,* The German Industrial Census of 1936, Statistics as Preparation for the War, in: JWG, 2005/2, pp. 155-165.

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The symmetric table for 1936, presented here, is completely based on original statistical data and does not rely on separate supply and use tables. The input-output table is integrated into national accounts and accordingly offers a new benchmark for German historical national accounts, i.e. production, income and expenditure of Germany in 1936. Our input-output table thus provides a detailed and consistent account of the economy of Germany in 1936, the second-largest economy in the world at that time.

In several respects, 1936 is a useful benchmark year: around three years after the German economy had gone through the trough of the world economy's most severe business cycle, employment of people and capital stock had recovered significantly. Only three years before Germany attacked Poland and thus started the Second World War, it was nevertheless essentially still a peacetime economy independent of the increasing orientation towards armament production. The bulk of Germany's output was produced by equipment and other capital stock originally invested mostly for civilian purposes. Thus neither an exceptional position in the course of the business cycle nor an exceptional intervention of the government spoils the benchmark of 1936 for qualifying as calibration year for international or inter-temporal comparisons.

These new data on German historical national accounts shed light on the national income figures of the Statistical Office itself and on data sets derived from these figures. Above all, we offer an alternative to the unreliable 1913-benchmark and to the subsequently related figures Hoffmann and his collaborators presented.[4] We took the three approaches (production, income and expenditure) of national accounting and filled the figures into the consistent framework of an input-output table. The inevitable double-check of all figures within this system enforces the consistent entry of all numbers into the bookkeeping of national accounts. Neither the StRA nor Hoffmann underwent this coherent and demanding procedure. And consequently, besides presenting alternative estimates of national income and expenditure, we

4 Hoffmann's (*W.G. Hoffmann et al*., Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts, Berlin 1965) edifice of historical national accounts is founded on 1913 as the benchmark or calibration year. His time series, often based on chained index numbers, cover a period between 1850 and 1959. For a critical assessment of Hoffmann et al. see: *R. Fremdling*, German National Accounts for the 19th and 20th Century, A Critical Assessment, in: VSWG 75, 1988, pp. 339-357; *Idem*, Productivity Comparison between Great Britain and Germany, 1855-1913, in: Scandinavian Economic History Review 39, 1991, pp. 28-42; *Idem*, German National Accounts for the 19th and Early 20th Century, in: Scandinavian Economic History Review 43, 1995, pp. 77-100; *Idem*, German Industrial Employment 1925, 1933, 1936 and 1939. A New Benchmark for 1936 and a Note on Hoffmann's Tales, in: JWG 2007/2, pp. 171-195; *R. Fremdling/R. Stäglin,* Eine Input-Output-Tabelle für 1936 als Grundlage einer neuen volkswirtschaftlichen Gesamtrechnung für Deutschland, in: *Institut für Wirtschaftsforschung Halle-IWH (Ed.)*, Neuere Anwendungsfelder der Input-Output-Analyse, Halle 2004, pp. 11-32; *Fremdling/Stäglin*, Industrieerhebung; *A. Ritschl/M. Spoerer,* Das Bruttosozialprodukt in Deutschland nach den amtlichen Volkseinkommens- und Sozialproduktstatistiken 1901-1995, in: JWG 1997/2, pp. 27-54*; A. Ritschl,* Spurious Growth in German Output Data, 1913-1938, in: European Review of Economic History 8, 2004, pp. 201-223*; C. Burhop/G.B. Wolff,* A Compromise Estimate of German Net National Product, 1851-1913, and its Implications for Growth and Business Cycles, in: Journal of Economic History 65, 2005, pp. 613-657; see, however, also the controversy between *S. N. Broadberry/C. Burhop,* Comparative Productivity in British and German Manufacturing Before World War II: Reconciling Direct Benchmark Estimates and Time Series Projections, in: Journal of Economic History, 67, 2007, pp. 315-349; *Idem,* Resolving the Anglo-German Industrial Productivity Puzzle, 1895-1935: A Response to Professor Ritschl, in: Journal of Economic History 68, 2008, pp. 930-934, and *A. Ritschl*, The Anglo-German industrial Productivity Puzzle, 1895-1935: a Restatement and a possible Resolution, in: Journal of Economic History 68, 2008, pp. 535-565.

offer the first account of pre-war German output (gross domestic product = GDP) by measuring production through value added.

Further research based on this table can be pursued along the following lines: firstly, our input-output table can serve its original intention in retrospect and for historical research. By implementing the then discussed (or any other counterfactual type of) "Keynesian" policy, strategies for German recovery can be evaluated or even designed. In a separate article and as a first approach, we present the results of rearmament on employment and production in 1936. The direct and indirect economic effects are thus assessed by applying input-output analysis.[5]

Secondly, the table sheds new light on the statistical information system of the German war economy, because the 1936 census provided the only reliable overview of industry for that period. In fact, already before the war, the statistics of the industrial census had directly been utilized for military exercises under the guidance of the Office for Military-Economic Planning.[6] This office, however, failed to set up a consistent information system for the war and was finally put back to its former position within the Statistical Office. The statistical content of the industrial census subsequently still became the information benchmark for Speer's Ministry of Armament to run the German war economy[7] under the statistical guidance of Wagenführ and the German Institute for Economic Research.[8]

Thirdly, the table and the related records can form the starting point to analyse East German economic policy. After the war, the census data actually served as benchmark information for implementing the East German plan economy.[9]

Fourthly, we compared the structure of the German economy before and after the war by applying our table. Was post-war recovery of both German economies a mere resumption or rather a radical break with past economic structures? Our preliminary results suggest more continuity than change, and the change there was mainly derived from investment and new industries and locations in connection with rearmament and the war economy itself.[10]

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5 See *R. Fremdling/R. Staeglin*, Output, National Income and Expenditure: An Input-Output Table of Germany in 1936, in: European Review of Economic History, 2014 (forthcoming).

6 Formerly, this office was the department of industrial statistics within the Statistical Office. Renamed as Reichsamt für Wehrwirtschaftliche Planung (RWP), it became an independent institution in 1938. See *Reichsamt für Wehrwirtschaftliche Planung*, Die deutsche Industrie. Gesamtergebnisse der amtlichen Produktionsstatistik, Berlin 1939; *Fremdling*, German Industrial Census; *Tooze,* Statistics, pp. 222 ff.

7 "This census – the most comprehensive one for German industries - was used as a basis in the planning of the armament program and the war economy in Germany." Office of Military Government for Germany (US) (*OMGUS),* StH46, Teil I Bevölkerung und Beschäftigung – Part I Population and Employment, p. 3.

8 In 1925, Ernst Wagemann, then head of the Statistical Office, had founded the Deutsches Institut für Wirtschaftsforschung (DIW, until 1942 Institut für Konjunkturforschung, IfK) in order to pursue an independent research based on their data. For details, see *B. Kulla*, Die Anfänge der empirischen Konjunkturforschung in Deutschland 1925-1933, Berlin 1996, pp. 22 ff.; *Tooze,* Statistics, pp. 265 f., pass.; *R. Wagenführ*, Die deutsche Industrie im Kriege 1939-1945, Berlin 1955 ($1963^2$).

9 *Fremdling*, German Industrial Census; *Idem/R. Stäglin*, Der Industriezensus von 1936 – Input-Output-Tabelle, historische volkswirtschaftliche Gesamtrechnung und Strukturvergleich mit Nachkriegsdeutschland, in: *Institut für Wirtschaftsforschung Halle-IWH (Ed.)*, Neuere Anwendungsfelder der Input-Output-Analyse, Halle 2007, pp. 32-67.

10 *Ibid.*; *R. Fremdling/R. Stäglin*, Verschleierung mit Statistik: Kriegswirtschaftliche Desinformation im Nationalsozialismus, in: VSWG 99, 2012, pp. 323-335.

The documentation is organised in the following way: firstly, we present the results of our endeavour. Secondly, we draw comparison with alternative national accounts figures for the benchmark year of 1936. Thirdly, we discuss data sources of the input-output table, touch upon conceptual and empirical statistical problems and finally give details about the estimation procedure. This part concentrates on the industrial census of 1936. Furthermore, government expenditure is particularized in order to reveal the enormous amount spent on rearmament. Furthermore, we discuss the compilation of non-industrial branches of quadrant I of our input-output table, the categories of final demand (quadrant II) and the components of primary inputs (quadrant III). In addition, we put forward the technical details of finalizing our table, such as the conversion from purchasers' prices to producers' prices and the balancing. An annex comprises a special chapter on the numbers, composition and statistical sources of the German labour force during the 1930s.

## 2. The Input-Output Table

An input-output table presents a consistent accounting system and shows the flows of goods and services in an economy for a specific period, generally for a year.[11] It quantifies the production process by presenting intermediate and primary inputs combined in order to get intermediate and final outputs. This distinction is explicitly reflected in the four quadrants of the input-output matrix.

*Table 2-1* depicts the final version of our input-output table for 1936. It comprises 40 production sectors or branches, five categories of final demand and five primary inputs. Inputs are valued at producers' prices, whereas the sources, e.g. the industrial census of 1936, had recorded purchasers' prices. The price conversion and the necessary adjustment of the intermediate transaction matrix (balancing) are described below. For the delimitation of the sectors, we followed the classification of the StRA as it was applied in the industrial census of 1936 and in other appropriate publications of the German Statistical Office.

*Quadrant I* is the core of the quantitative system. It presents the flows of intermediate goods and services between the 40 domestic production sectors indicating the interdependencies within the German productive system in 1936. For each sector the distribution of its intermediate outputs to other production sectors is shown by row and the composition of its intermediate inputs by supplying sectors appears by column. The figure in row 1 and column 30 (cell 1/30) implies for example that the value of agricultural goods used by the sector of food, beverages and tobacco amounts to 3,617m RM. This amount is part of total domestic intermediate output of agriculture (sector 1, cell 1/1-40 = 4,696 m RM) but at the same time part of total domestic intermediate input of food, beverages and tobacco (sector 30, cell 1-40/30 = 7,084 m RM).

*Quadrant II* of the input-output table shows the outputs of the 40 production sectors transferred to the categories of final demand (private and government consumption, gross fixed capital formation, changes in inventories, exports). It can be seen that agriculture delivered goods of 6,835 m RM to private consumption (cell 1/41) whereas private consumption also received food, beverages and tobacco for 10,810 m RM from sector 30 (cell 30/41) in 1936.

11 *R. Stäglin*, Input-Output-Tabellen, in: *D. Brümmerhoff/H. Lützel (Eds.),* Lexikon der Volkswirtschaftlichen Gesamtrechnungen, Munich 2002, pp. 193-98.

Below the quadratic intermediate transaction matrix of quadrant I, the primary inputs of the 40 sectors are shown in *quadrant III*. The rows 41 to 45 cover imports, compensation of employees, indirect taxes minus subsidies, consumption of fixed capital, mixed income/ operating surplus. The results in column 30 for example demonstrate that the sector of food, beverages and tobacco had imports of 828 m RM (cell 41/30) in 1936 and paid 1,556 m RM for compensation of employees (cell 42/30). The total input/gross production of food, beverages and tobacco amounted to 14,249 m RM (cell 1-45/30).

The three quadrants described represent a complete input-output table already. They are supplemented by *quadrant IV* which in our example given above only covers imports. Quadrant IV is filled in depending on the individual concept followed for the compilation of the table.

The quadrants I and II together result in total outputs (gross production values) of the 40 production sectors presented in the last column 1-45 of the input-output table. They are identical with total inputs in the last row 1-45 resulting from the addition of quadrants I and III. For the sector of food, beverages and tobacco, e.g., the identical gross production value amounts to 14,249 m RM (cell 30/1-45 = cell 1-45/30).

The input-output table not only "captures the interdependence of the economy in a compact and elegant manner"[12] but offers a coherent and systematic approach to key figures of national accounts. The now prevailing elaborated System of National Accounts (SNA) has been developed for market-oriented economies after the Second World War mainly by agreement among nations under the guidance of international organizations.[13] In contrast to its forerunner, which mainly measured income on the basis of tax returns, the SNA essentially was based on the concept of value added or net production derived from production censuses.

In Germany, the Anglo-American concept of value added[14] or net production was applied for the first time when gathering the data for the industrial census of 1936.[15] Until then, German production statistics relied on physical numbers, gross values for output at different stages of production and index numbers for aggregation. Applying the concept of value added for measurement is the only consistent way to solve the aggregation problem when production or output of all the various economic activities are lumped together. The Anglo-American concept avoids inevitable double counting when summing together gross values or the well-known traps when relying on index numbers for macro-economic indices.

12 *M. Thomas*, Rearmament and Economic Recovery in the late 1930s, in: The Economic History Review 36, 1983, pp. 552-579.

13 EC/IMF/OECD/UN, System of National Accounts, Brussels 2008/2009 (*EC,* SNA 2008).

14 Milestones are the US Census of Manufactures for 1905 and the UK Census of Production for 1907. Based on this British census of 1907, Thomas constructed an input-output table. See his dissertation summary, *M. Thomas*, An Input-Output Approach to the British Economy, 1890-1914, in: The Journal of Economic History 45, 1985, pp. 460-463; Leontief (1936) had used the US industrial census of 1919, *Tooze*, Statistics, p. 200.

15 To some extent, this holds also true for the preceding, however, less comprehensive industrial census of 1933 which served as model for the 1936-census. See the archival record on the ambitious agenda for a continuation of industrial statistics (BA R3102 2992 „Arbeitsplan für die Weiterführung der Industriestatistik") of 1934.

*Table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| | Output | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Agriculture | 166.2 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Forestry, fishery | 0.0 | 32.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 311.2 |
| 3 | Mining | 35.8 | 4.3 | 772.0 | 117.8 | 277.4 | 52.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 17.8 | 0.0 | 0.0 | 0.0 |
| 4 | Fuel industries | 76.1 | 16.0 | 0.1 | 263.6 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 8.4 | 0.3 | 1.7 | 1.2 | 0.0 | 0.0 | 5.4 |
| 5 | Basic iron and steel products | 0.0 | 0.0 | 110.8 | 0.0 | 2063.1 | 31.8 | 121.2 | 885.7 | 415.6 | 263.7 | 230.7 | 77.6 | 7.9 | 56.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 6 | Non-ferrous metals | 0.0 | 0.0 | 15.0 | 7.3 | 30.0 | 583.6 | 91.4 | 74.1 | 126.6 | 9.9 | 91.4 | 177.5 | 22.1 | 305.0 | 0.0 | 1.2 | 0.6 | 0.0 |
| 7 | Foundries | 0.0 | 0.0 | 63.8 | 0.0 | 108.9 | 10.0 | 121.5 | 55.1 | 324.2 | 32.1 | 181.6 | 45.7 | 8.0 | 11.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8 | Fabricated iron and steel products | 247.2 | 47.8 | 13.3 | 2.4 | 186.3 | 30.0 | 0.0 | 173.8 | 163.9 | 63.3 | 286.0 | 46.3 | 4.1 | 7.2 | 0.0 | 0.0 | 3.9 | 0.0 |
| 9 | Machinery | 23.4 | 6.1 | 0.0 | 0.0 | 21.1 | 0.0 | 0.0 | 0.0 | 103.4 | 22.1 | 69.9 | 18.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | Constructional steel | 4.4 | 0.0 | 0.0 | 0.0 | 14.2 | 10.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11 | Vehicles and aerospace | 17.2 | 14.4 | 0.0 | 0.0 | 20.5 | 10.0 | 0.0 | 0.0 | 0.0 | 13.6 | 147.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12 | Electrical engineering | 22.0 | 0.0 | 3.5 | 0.0 | 9.4 | 11.8 | 0.0 | 0.0 | 76.1 | 16.6 | 71.8 | 182.1 | 16.1 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13 | Precision engineering, optics | 4.1 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.9 | 0.0 | 39.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 14 | Metal products | 6.1 | 0.0 | 0.0 | 0.0 | 6.5 | 1.4 | 0.0 | 0.0 | 2.1 | 0.0 | 0.9 | 0.0 | 0.0 | 6.9 | 18.2 | 2.8 | 0.0 | 0.0 |
| 15 | Stone and quarrying | 46.1 | 0.0 | 1.9 | 1.1 | 289.5 | 5.4 | 10.6 | 0.0 | 0.0 | 0.3 | 0.0 | 2.7 | 0.2 | 4.0 | 140.0 | 25.1 | 9.6 | 0.0 |
| 16 | Ceramics | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 6.2 | 0.0 | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 |
| 17 | Glass | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 7.1 | 5.5 | 5.2 | 7.2 | 0.0 | 0.0 | 19.5 | 0.0 |
| 18 | Saw mills, timber processing | 0.0 | 0.0 | 101.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 20.9 | 0.0 | 1.0 | 2.3 | 0.1 | 0.1 | 0.0 | 35.3 |
| 19 | Manufactured wood products | 107.2 | 5.5 | 1.4 | 1.8 | 0.0 | 1.7 | 0.1 | 24.4 | 13.8 | 0.1 | 5.5 | 6.7 | 4.5 | 11.7 | 8.8 | 2.7 | 0.0 | 0.0 |
| 20 | Chemical industry | 511.8 | 32.7 | 52.1 | 9.6 | 7.1 | 23.3 | 4.4 | 12.5 | 3.1 | 8.7 | 5.5 | 22.2 | 0.8 | 19.3 | 8.3 | 2.7 | 22.0 | 0.6 |
| 21 | Chemical-technical industry | 44.3 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 10.5 | 10.9 | 6.1 | 33.1 | 80.0 | 3.3 | 2.3 | 0.7 | 3.0 | 0.3 | 0.0 |
| 22 | Rubber and asbestos manufacture | 4.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.0 | 0.6 | 55.6 | 11.2 | 0.5 | 0.7 | 0.0 | 0.0 | 0.7 | 0.0 |
| 23 | Manufacture of paper and paper products | 30.0 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 4.1 | 10.8 | 0.6 | 0.4 | 0.0 | 0.0 | 3.3 | 0.0 |
| 24 | Printing and duplicating | 10.0 | 3.1 | 2.5 | 0.0 | 0.0 | 0.2 | 0.1 | 9.2 | 6.0 | 0.0 | 10.0 | 7.4 | 0.9 | 5.7 | 6.8 | 3.7 | 0.0 | 0.0 |

*Continuation table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| | Output | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 25 | Leather industry | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 6.1 | 0.3 | 7.0 | 0.0 | 2.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 |
| 26 | Textiles | 0.0 | 4.3 | 3.8 | 7.9 | 0.0 | 1.7 | 0.1 | 0.0 | 0.0 | 3.0 | 24.5 | 18.2 | 2.7 | 12.5 | 1.5 | 2.9 | 3.3 | 0.0 |
| 27 | Clothing | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 28 | Edible oil and fats | 157.3 | 5.2 | 0.0 | 4.4 | 0.0 | 0.4 | 2.2 | 18.5 | 9.4 | 0.1 | 0.2 | 0.7 | 0.8 | 1.8 | 0.1 | 0.4 | 0.0 | 0.0 |
| 29 | Spirits industry | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | 155.4 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 31 | Building and construction | 284.0 | 0.0 | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 32 | Electricity, gas and water | 162.0 | 11.5 | 104.2 | 29.3 | 169.0 | 100.4 | 42.8 | 86.0 | 69.8 | 21.0 | 48.0 | 38.6 | 7.1 | 26.7 | 192.4 | 24.4 | 30.2 | 9.8 |
| 33 | Wholesale trade | 129.0 | 15.3 | 46.0 | 16.5 | 106.3 | 49.9 | 22.5 | 72.3 | 76.4 | 29.4 | 82.4 | 42.7 | 8.6 | 28.3 | 37.2 | 6.3 | 9.0 | 31.9 |
| 34 | Retail trade | 158.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 35 | Transport and communication | 202.9 | 10.8 | 107.0 | 37.9 | 184.7 | 56.4 | 34.6 | 97.0 | 115.2 | 43.2 | 109.7 | 80.7 | 18.0 | 45.3 | 43.6 | 10.1 | 11.5 | 29.6 |
| 36 | Banking and insurance | 52.5 | 0.0 | 29.0 | 7.5 | 39.9 | 14.2 | 8.8 | 12.6 | 24.3 | 9.6 | 30.3 | 13.9 | 1.7 | 5.6 | 10.4 | 2.1 | 2.1 | 5.3 |
| 37 | Dwelling | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.7 | 40.5 | 0.0 | 60.7 | 11.6 | 2.9 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 38 | Government | 55.4 | 4.2 | 31.2 | 8.1 | 43.1 | 15.3 | 9.5 | 27.2 | 34.9 | 10.4 | 27.5 | 20.0 | 5.0 | 12.2 | 15.0 | 3.0 | 3.1 | 7.7 |
| 39 | Other services | 353.9 | 73.3 | 73.6 | 99.7 | 161.9 | 91.3 | 5.5 | 57.1 | 97.7 | 11.0 | 94.1 | 81.9 | 27.2 | 41.3 | 8.7 | 5.3 | 8.1 | 4.5 |
| 40 | Domestic services | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1-40 | Domestic intermediate and final inputs | **3117.3** | **298.7** | **1547.2** | **625.2** | **3740.0** | **1102.1** | **475.4** | **1636.3** | **1735.1** | **587.1** | **1751.8** | **1021.8** | **191.4** | **636.2** | **513.4** | **95.8** | **127.6** | **441.4** |
| 41 | Imports | 139.1 | 0.0 | 1.8 | 74.0 | 196.5 | 224.2 | 6.3 | 18.2 | 11.4 | 8.2 | 1.0 | 22.9 | 8.1 | 13.8 | 17.9 | 5.8 | 1.9 | 99.0 |
| 1-41 | Total intermediate and final inputs | **3256.4** | **298.7** | **1549.0** | **699.2** | **3936.5** | **1326.3** | **481.7** | **1654.4** | **1746.4** | **595.2** | **1752.8** | **1044.6** | **199.4** | **649.9** | **531.3** | **101.6** | **129.5** | **540.3** |
| 42 | Compensation of employees | 1763.5 | 238.0 | 1220.2 | 87.1 | 492.7 | 175.1 | 337.8 | 769.5 | 1188.7 | 359.2 | 767.0 | 665.0 | 204.1 | 370.9 | 584.7 | 128.6 | 115.0 | 147.8 |
| 43 | Indirect taxes minus subsidies | 101.2 | 0.7 | 152.1 | 46.6 | 66.6 | 20.6 | 13.0 | 90.9 | 95.6 | -270.9 | -221.3 | 71.2 | 17.6 | 14.2 | 52.3 | 8.1 | 9.5 | 21.2 |
| 44 | Consumption of fixed capital | 750.0 | 56.0 | 392.0 | 63.0 | 125.0 | 67.0 | 31.0 | 38.0 | 188.0 | 40.0 | 360.0 | 127.0 | 21.0 | 23.0 | 174.0 | 17.0 | 16.0 | 8.0 |
| 45 | Mixed income/operating surplus | 6109.9 | 307.6 | 309.2 | 40.7 | 371.0 | 189.2 | 242.7 | 596.1 | 830.6 | 480.0 | 375.6 | 407.4 | 136.3 | 350.7 | 395.3 | 87.1 | 84.1 | 173.8 |
| 42-45 | Gross value added (net production) | **8724.6** | **602.3** | **2073.5** | **237.4** | **1055.3** | **451.8** | **624.5** | **1494.5** | **2303.0** | **608.3** | **1281.4** | **1270.6** | **379.0** | **758.8** | **1206.3** | **240.8** | **224.6** | **350.8** |
| 1-45 | Gross production | **11981.0** | **901.0** | **3622.5** | **936.6** | **4991.9** | **1778.2** | **1106.2** | **3148.9** | **4049.4** | **1203.5** | **3034.2** | **2315.2** | **578.4** | **1408.7** | **1737.7** | **342.3** | **354.2** | **891.1** |

*Continuation table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| | Output | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Manufactured wood products | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance |
| | Input | | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 1 | Agriculture | 1 | 20.2 | 6.5 | 4.1 | 0.0 | 0.0 | 0.0 | 118.0 | 66.3 | 5.7 | 111.8 | 73.7 | 3616.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 |
| 2 | Forestry, fishery | 2 | 75.9 | 0.0 | 2.7 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 0.0 | 41.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| 3 | Mining | 3 | 1.1 | 76.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 12.4 | 571.5 | 7.7 | 6.0 | 354.0 | 6.7 |
| 4 | Fuel incustries | 4 | 0.0 | 22.2 | 25.0 | 5.4 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 103.3 | 8.4 | 43.9 | 192.6 | 2.9 |
| 5 | Basic iron and steel procucts | 5 | 0.0 | 82.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 230.0 | 0.0 | 11.4 | 0.0 | 78.7 | 0.0 |
| 6 | Non-ferrous metals | 6 | 2.6 | 39.1 | 1.7 | 1.4 | 0.0 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 1.9 | 0.0 | 7.1 | 0.0 |
| 7 | Foundries | 7 | 0.5 | 5.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 2.6 | 0.0 | 17.1 | 0.0 |
| 8 | Fabricated iron and steel products | 8 | 51.1 | 12.8 | 8.3 | 5.3 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.5 | 0.0 | 84.1 | 170.0 | 0.0 | 1.6 | 3.1 | 37.4 | 0.0 |
| 9 | Machinery | 9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.2 | 54.0 | 15.9 | 9.0 | 56.9 | 13.2 |
| 10 | Constructional steel | 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 152.0 | 43.0 | 0.0 | 1.6 | 30.4 | 0.0 |
| 11 | Vehicles and aerospace | 11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 14.0 | 20.2 | 192.3 | 3.6 |
| 12 | Electrical engineering | 12 | 2.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.3 | 17.6 | 5.4 | 4.2 | 54.9 | 6.9 |
| 13 | Precision engineering, optics | 13 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 0.0 |
| 14 | Metal products | 14 | 15.0 | 1.5 | 4.6 | 1.0 | 4.0 | 4.9 | 12.1 | 2.2 | 3.5 | 0.0 | 0.0 | 12.8 | 85.0 | 25.5 | 2.5 | 1.2 | 13.1 | 6.4 |
| 15 | Stone and quarrying | 15 | 0.0 | 34.5 | 5.2 | 1.3 | 7.4 | 0.1 | 0.4 | 0.0 | 0.0 | 1.4 | 0.0 | 7.2 | 962.7 | 0.0 | 7.2 | 0.0 | 30.0 | 0.0 |
| 16 | Ceramics | 16 | 0.0 | 0.3 | 4.6 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17 | Glass | 17 | 29.8 | 10.4 | 5.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 38.1 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 |
| 18 | Saw mills, timber processing | 18 | 296.3 | 0.3 | 0.0 | 0.0 | 47.4 | 2.3 | 5.7 | 0.2 | 0.0 | 0.0 | 0.0 | 3.5 | 172.8 | 0.0 | 0.0 | 0.0 | 22.0 | 0.0 |
| 19 | Manufactured wood products | 19 | 105.6 | 22.8 | 28.6 | 1.1 | 7.1 | 5.1 | 8.4 | 31.2 | 33.1 | 11.4 | 0.6 | 111.6 | 66.0 | 46.0 | 4.4 | 5.4 | 3.4 | 9.9 |
| 20 | Chemical industry | 20 | 32.0 | 542.6 | 113.5 | 17.3 | 22.6 | 38.5 | 18.9 | 201.1 | 2.1 | 10.5 | 16.2 | 13.4 | 0.0 | 5.8 | 35.5 | 2.8 | 13.8 | 6.4 |
| 21 | Chemical-technical industry | 21 | 46.4 | 47.4 | 45.6 | 0.7 | 4.5 | 6.7 | 32.7 | 0.0 | 0.1 | 0.0 | 0.0 | 3.8 | 0.0 | 17.0 | 0.0 | 1.2 | 0.5 | 0.0 |
| 22 | Rubber and asbestos manufacture | 22 | 0.0 | 1.3 | 1.2 | 12.6 | 0.0 | 0.5 | 19.5 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 25.2 | 3.8 | 4.8 | 185.9 | 0.0 |
| 23 | Manufacture of paper and paper products | 23 | 8.5 | 1.7 | 2.4 | 1.0 | 191.6 | 369.4 | 4.5 | 43.5 | 0.1 | 7.8 | 5.1 | 98.9 | 0.0 | 0.0 | 16.2 | 33.2 | 1.6 | 17.1 |
| 24 | Printing and duplicating | 24 | 0.0 | 21.2 | 2.9 | 0.0 | 30.0 | 149.1 | 0.0 | 10.9 | 6.0 | 0.1 | 0.0 | 12.9 | 0.0 | 0.0 | 6.0 | 12.8 | 38.9 | 41.4 |

*Continuation table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| | Output | Manufactured wood products | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Input | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 25 | Leather industry | 2.8 | 0.2 | 1.2 | 1.7 | 0.1 | 3.3 | 430.0 | 6.9 | 9.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 2.2 | 0.0 | 0.0 |
| 26 | Textiles | 31.4 | 26.9 | 15.3 | 52.9 | 28.6 | 7.9 | 50.3 | 2601.6 | 856.3 | 5.7 | 0.1 | 97.0 | 0.0 | 0.0 | 11.5 | 12.7 | 10.1 | 3.8 |
| 27 | Clothing | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 132.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 7.4 | 0.0 | 0.0 |
| 28 | Edible oil and fats | 12.8 | 7.6 | 59.6 | 1.1 | 0.9 | 5.4 | 14.8 | 9.3 | 0.4 | 382.1 | 0.0 | 88.5 | 0.0 | 0.0 | 3.5 | 8.3 | 0.0 | 0.0 |
| 29 | Spirits industry | 0.0 | 11.3 | 5.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 406.5 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | 7.8 | 21.3 | 9.9 | 0.6 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 70.1 | 32.3 | 1495.9 | 0.0 | 0.0 | 14.9 | 18.3 | 14.3 | 6.6 |
| 31 | Building and construction | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.0 | 276.6 | 10.0 | 0.00 | 0.00 | 79.6 | 22.0 |
| 32 | Electricity, gas and water | 32.6 | 127.1 | 16.7 | 15.5 | 75.4 | 12.1 | 17.7 | 150.7 | 1.2 | 17.9 | 16.7 | 198.5 | 0.0 | 238.9 | 7.93 | 15.90 | 96.2 | 12.4 |
| 33 | Wholesale trade | 51.5 | 85.6 | 29.1 | 8.3 | 30.8 | 37.3 | 47.1 | 157.4 | 42.7 | 37.9 | 33.6 | 398.4 | 125.6 | 66.8 | 312.3 | 715.1 | 87.6 | 29.1 |
| 34 | Retail trade | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.0 | 18.0 | 12.0 | 20 | 95 | 25.0 | 10.0 |
| 35 | Transport and communication | 87.6 | 246.5 | 49.2 | 18.3 | 39.4 | 66.1 | 80.8 | 411.5 | 109.4 | 59.2 | 37.5 | 501.0 | 240.5 | 251.6 | 683.2 | 343.7 | 468.0 | 107.0 |
| 36 | Banking and insurance | 7.8 | 18.7 | 7.7 | 2.6 | 5.8 | 5.9 | 6.2 | 15.7 | 8.6 | 6.8 | 2.6 | 42.7 | 50.7 | 20.6 | 709.1 | 193.3 | 285.3 | 330.1 |
| 37 | Dwelling | 7.8 | 3.1 | 1.3 | 0.0 | 2.3 | 3.9 | 0.0 | 0.0 | 11.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.8 | 579.8 | 2.5 | 0.0 |
| 38 | Government | 22.4 | 26.9 | 11.0 | 4.5 | 10.0 | 16.9 | 17.8 | 67.8 | 24.9 | 14.7 | 7.4 | 57.0 | 72.9 | 29.7 | 74.0 | 76.8 | 120.2 | 30.4 |
| 39 | Other services | 23.3 | 123.9 | 62.1 | 6.2 | 109.9 | 127.8 | 26.6 | 254.5 | 65.5 | 10.2 | 10.2 | 99.7 | 80.7 | 120.2 | 307.1 | 138.9 | 513.4 | 58.0 |
| 40 | Domestic services | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1-40 | Domestic intermediate and final inputs | **974.9** | 1651.9 | **544.2** | 159.3 | **625.5** | **871.3** | **912.4** | 4031.6 | 1314.1 | **756.1** | 647.7 | **7083.5** | **2834.5** | 1710.8 | 2384.7 | 2356.8 | 3052.9 | **727.5** |
| 41 | Imports | 118.7 | 108.7 | 75.2 | 76.3 | 109.2 | 7.2 | 184.0 | 1049.4 | 53.4 | 286.1 | 12.9 | 828.3 | 0.0 | 12.8 | 102.4 | 15.4 | 385.0 | 640.0 |
| 1-41 | Total intermediate and final inputs | 1093.6 | 1760.5 | **619.4** | 235.6 | **734.7** | **878.5** | 1096.3 | 5081.0 | 1367.4 | 1042.3 | 660.6 | 7911.8 | 2834.5 | 1723.7 | 2487.1 | 2372.2 | 3437.9 | 1367.5 |
| 42 | Compensation of employees | 676.5 | 443.6 | 174.5 | 118.3 | 179.9 | 588.9 | 437.6 | 1331.1 | 492.8 | 83.0 | 48.1 | 1555.9 | 2892.7 | 466.9 | 1409.9 | 880.7 | 3495.5 | 1137.5 |
| 43 | Indirect taxes minus subsidies | 92.6 | 68.8 | 56.6 | 16.3 | 41.2 | 50.0 | 35.1 | 190.0 | 107.8 | 351.9 | 30.2 | 2727.0 | 191.6 | 39.5 | 1043.4 | 567.8 | 330.1 | 165.6 |
| 44 | Consumption of fixed capital | 17.0 | 191.0 | 25.0 | 13.0 | 62.0 | 42.0 | 39.0 | 217.0 | 6.0 | 20.0 | 8.0 | 196.0 | 101.0 | 384.0 | 95.9 | 142.9 | 643.5 | 49.0 |
| 45 | Mixed income/operating surplus | 714.2 | 655.4 | 401.9 | 134.1 | 138.6 | 397.7 | 458.7 | 1039.0 | 908.9 | 205.5 | 106.4 | 1858.6 | 4173.0 | 824.7 | 935.5 | 478.1 | 2060.0 | 824.5 |
| 42-45 | Gross value added (net production) | 1500.4 | 1358.8 | 657.9 | 281.7 | 421.6 | 1078.6 | 970.4 | 2777.1 | 1515.5 | 660.4 | 192.7 | 6337.5 | 7358.3 | 1715.1 | 3484.6 | 2069.6 | 6529.0 | 2176.6 |
| 1-45 | Gross production | 2594.0 | 3119.3 | 1277.4 | 517.3 | 1156.4 | 1957.1 | 2066.8 | 7858.1 | 2883.0 | 1702.7 | 853.4 | 14249.3 | 10192.9 | 3438.7 | 5971.7 | 4441.8 | 9966.9 | 3544.1 |

*Continuation table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| Output | | Dwelling | Government | Other services | Domestic services | Domestic intermediate outputs | Private consumption | Government consumption | Gross fixed capital formation | Changes in inventories | Exports | Final output | Gross production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | 37 | 38 | 39 | 40 | 1-40 | 41 | 42 | 43 | 44 | 45 | 41-45 | 1-45 |
| 1 | Agriculture | 16.9 | 388.7 | 91.0 | | **4696.2** | 6834.8 | 0.0 | 0.0 | 400.0 | 50.0 | **7284.8** | **11981.0** |
| 2 | Forestry, fishery | 0.0 | 9.6 | 13.4 | | **499.3** | 386.7 | 0.0 | 0.0 | 10.0 | 5.0 | **401.7** | **901.0** |
| 3 | Mining | 23.4 | 78.1 | 32.0 | | **2457.3** | 716.0 | 0.0 | 0.0 | -6.0 | 455.1 | **1165.1** | **3622.5** |
| 4 | Fuel industries | 2.7 | 31.3 | 14.7 | | **828.7** | 70.0 | 0.0 | 0.0 | 2.0 | 35.9 | **107.9** | **936.6** |
| 5 | Basic iron and steel products | 0.0 | 2.6 | 0.0 | | **4672.6** | 0.0 | 0.0 | 0.0 | 67.2 | 252.1 | **319.3** | **4991.9** |
| 6 | Non-ferrous metals | 0.0 | 1.8 | 1.8 | | **1609.5** | 0.0 | 0.0 | 0.0 | 32.1 | 136.6 | **168.7** | **1778.2** |
| 7 | Foundries | 0.0 | 0.0 | 0.0 | | **998.2** | 0.0 | 0.0 | 0.0 | 67.0 | 41.0 | **108.0** | **1106.2** |
| 8 | Fabricated iron and steel products | 0.0 | 656.0 | 0.0 | | **2307.7** | 123.0 | 0.0 | 275.4 | 52.4 | 390.4 | **841.2** | **3148.9** |
| 9 | Machinery | 22.5 | 684.3 | 24.5 | | **1229.0** | 68.8 | 0.0 | 2094.8 | -20.0 | 676.8 | **2820.5** | **4049.4** |
| 10 | Constructional steel | 0.0 | 375.8 | 0.0 | | **641.4** | 20.0 | 0.0 | 512.6 | -87.5 | 117.1 | **562.1** | **1203.5** |
| 11 | Vehicles and aerospace | 0.0 | 1028.7 | 46.7 | | **1537.0** | 825.6 | 0.0 | 636.4 | -92.9 | 128.1 | **1497.2** | **3034.2** |
| 12 | Electrical engineering | 32.6 | 266.6 | 39.2 | | **884.2** | 189.2 | 0.0 | 943.0 | 29.8 | 268.9 | **1430.9** | **2315.2** |
| 13 | Precision engineering, optics | 0.0 | 98.7 | 8.7 | | **201.0** | 57.0 | 0.0 | 154.0 | 17.0 | 149.5 | **377.5** | **578.4** |
| 14 | Metal products | 32.7 | 354.3 | 26.4 | | **654.0** | 400.0 | 0.0 | 143.6 | -37.9 | 249.0 | **754.7** | **1408.7** |
| 15 | Stone and quarrying | 2.2 | 21.3 | 0.0 | | **1617.5** | 38.8 | 0.0 | 0.0 | 35.2 | 46.1 | **120.1** | **1737.7** |
| 16 | Ceramics | 46.8 | 6.1 | 22.7 | | **125.3** | 133.5 | 0.0 | 0.0 | 26.3 | 57.3 | **217.1** | **342.3** |
| 17 | Glass | 8.5 | 6.9 | 42.6 | | **199.2** | 88.7 | 0.0 | 0.0 | 2.0 | 64.3 | **155.0** | **354.2** |
| 18 | Saw mills, timber processing | 43.6 | 0.0 | 16.9 | | **782.6** | 89.0 | 0.0 | 0.0 | 15.8 | 3.7 | **108.5** | **891.1** |
| 19 | Manufactured wood products | 112.7 | 109.5 | 9.5 | | **929.5** | 1266.8 | 0.0 | 247.3 | 32.7 | 117.7 | **1664.6** | **2594.0** |
| 20 | Chemical industry | 2.0 | 259.9 | 103.1 | | **2204.6** | 340.0 | 0.0 | 0.0 | 34.3 | 540.4 | **914.7** | **3119.3** |
| 21 | Chemical-technical industry | 2.3 | 252.1 | 0.0 | | **656.3** | 558.0 | 0.0 | 0.0 | -20.0 | 83.1 | **621.1** | **1277.4** |
| 22 | Rubber and asbestos manufacture | 0.0 | 44.5 | 29.9 | | **418.2** | 108.0 | 0.0 | 0.0 | -48.4 | 39.6 | **99.2** | **517.3** |
| 23 | Manufacture of paper and paper products | 2.2 | 68.7 | 69.3 | | **1020.2** | 52.4 | 0.0 | 0.0 | -23.4 | 107.3 | **136.3** | **1156.4** |
| 24 | Printing and duplicating | 10.8 | 70.6 | 108.4 | | **587.2** | 1220.0 | 0.0 | 0.0 | 79.1 | 70.7 | **1369.8** | **1957.1** |

*Continuation table 2-1:* Input-output table for Germany in 1936 at producers' prices, m RM

| Output | | Dwelling | Government | Other services | Domestic services | Domestic intermediate outputs | Private consumption | Government consumption | Gross fixed capital formation | Changes in inventories | Exports | Final output | Gross production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | 37 | 38 | 39 | 40 | 1-40 | 41 | 42 | 43 | 44 | 45 | 41-45 | 1-45 |
| 25 | Leather industry | 0.0 | 20.3 | 24.1 | | **526.1** | 1368.6 | 0.0 | 0.0 | 60.0 | 112.1 | **1540.7** | **2066.8** |
| 26 | Textiles | 0.0 | 61.5 | 73.2 | | **4033.2** | 3348.5 | 0.0 | 0.0 | -31.1 | 507.4 | **3824.9** | **7858.1** |
| 27 | Clothing | 4.2 | 213.7 | 6.9 | | **366.9** | 2415.3 | 0.0 | 0.0 | -10.0 | 110.7 | **2516.0** | **2883.0** |
| 28 | Edible oil and fats | 0.0 | 5.0 | 41.1 | | **841.9** | 804.8 | 0.0 | 0.0 | 40.0 | 16.0 | **860.8** | **1702.7** |
| 29 | Spirits industry | 0.0 | 10.0 | 179.9 | | **621.0** | 191.6 | 0.0 | 0.0 | 40.0 | 0.8 | **232.4** | **853.4** |
| 30 | Food, beverages and tobacco | 8.7 | 374.5 | 969.4 | | **3206.9** | 10809.5 | 0.0 | 0.0 | 123.0 | 109.9 | **11042.4** | **14249.3** |
| 31 | Building and construction | 1025.0 | 2512.9 | 42.5 | | **4312.6** | 207.0 | 0.0 | 5619.0 | 0.0 | 54.2 | **5880.2** | **10192.8** |
| 32 | Electricity, gas and water | 176.5 | 136.3 | 95.2 | | **2634.6** | 800.0 | 0.0 | 0.0 | 0.0 | 4.1 | **804.1** | **3438.7** |
| 33 | Wholesale trade | 42.5 | 535.1 | 146.6 | | **3830.4** | 1201.9 | 0.0 | 325.5 | 359.0 | 255.0 | **2141.3** | **5971.7** |
| 34 | Retail trade | 50.0 | 153.7 | 101.0 | | **666.5** | 3485.9 | 0.0 | 0.0 | 289.3 | 0.0 | **3775.2** | **4441.8** |
| 35 | Transport and communication | 157.8 | 612.9 | 207.3 | | **6016.7** | 2778.8 | 0.0 | 201.4 | 0.0 | 970.0 | **3950.2** | **9966.9** |
| 36 | Banking and insurance | 700.9 | 49.3 | 85.7 | | **2826.2** | 572.9 | 0.0 | 0.0 | 0.0 | 145.0 | **717.9** | **3544.1** |
| 37 | Dwelling | 250.0 | 507.6 | 100.1 | | **1752.2** | 6534.8 | 0.0 | 0.0 | 0.0 | 0.0 | **6534.8** | **8287.0** |
| 38 | Government | 213.5 | 122.2 | 126.6 | | **1480.2** | 154.8 | 16060.4 | 34.0 | 0.0 | 24.0 | **16273.2** | **17753.4** |
| 39 | Other services | 362.4 | 780.7 | 615.3 | | **5192.8** | 2.891.2 | 0.0 | 109.0 | 0.0 | 160.0 | **3160.2** | **8353.0** |
| 40 | Domestic services | 0.0 | 0.0 | 0.0 | | **0.0** | 1260.8 | 0.0 | 0.0 | 0.0 | 0.0 | **1260.8** | **1260.8** |
| 1-40 | Domestic intermediate and final inputs | **3353.3** | **10912.0** | **3516.0** | | **70064.6** | **52412.8** | **16060.4** | **11296.0** | **1437.1** | **6555.0** | **87761.2** | **157825.9** |
| 41 | Imports | 0.0 | 89.0 | 78.0 | | **5081.9** | 786.1 | 0.0 | 72.0 | 0.0 | 0.0 | **858.1** | **5940.0** |
| 1-41 | Total intermediate and final inputs | **3353.3** | **11001.0** | **3594.0** | | **75146.6** | **53198.9** | **16060.4** | **11368.0** | **1437.1** | **6555.0** | **88619.3** | **163765.9** |
| 42 | Compensation of employees | 133.0 | 6152.4 | 2340.6 | 1260.8 | **35915.3** | | | | | | | **35915.3** |
| 43 | Indirect taxes minus subsidies | 83.4 | 0.0 | 352.1 | | **6830.1** | | | | | | | **6830.1** |
| 44 | Consumption of fixed capital | 1260.0 | 600.0 | 159.0 | | **6767.4** | | | | | | | **6767.4** |
| 45 | Mixed income/operating surplus | 3457.3 | 0.0 | 1907.3 | | **33166.5** | | | | | | | **33166.5** |
| 42-45 | Grcss value added (net production) | **4933.7** | **6752.4** | **4759.0** | **1260.8** | **82679.4** | | | | | | | **82679.4** |
| 1-45 | Grcss production | **8287.0** | **17753.4** | **8353.0** | **1260.8** | **157826.0** | **53198.9** | **16060.4** | **11368.0** | **1437.1** | **6555.0** | **88619.3** | **246445.3** |

By drawing on these value-added figures and by using the same concept for other sectors of the German economy, we thus estimated Gross Domestic Product (GDP) from the production side for the first time in German economic history for such an early year. Furthermore, our input-output-table provides new consistent national accounts figures for the other approach of national accounting: income and expenditure. Referring to the aggregate figures of primary inputs and final demand categories (Table 2-1) the Gross National Product (GNP) components of production and expenditure are summarised in Table 2-2, which also helps to read our input-output table. Another identity concerning the conformity of the expenditure side with the production side of national accounts can be derived from the input-output table: Quadrant II = Quadrant III. The corresponding totals are 87,761 m RM (cell 1-40/41-45) and 82,679 + 5,082 = 87,761 m RM (cells 42-45/1-40 + 41/1-40) in 1936. Table 2-3 presents the national accounts figures in the conventional balance sheet format.

*Table 2-2*: National accounts and the input-output table for Germany in 1936

| **Components of national accounts** | m RM | **Cells of the input-output table (no. row/no. column)**<br>**National accounts identities** |
|---|---|---|
| **Production** | | |
| Gross national product (GNP) | 82679 | (42-45/1-40) = (1-45/1-40) - (1-41/1-40)<br>GNP = Gross production - Total intermediate inputs |
| Gross domestic product (GDP) | 83294 | (42-45/1-40) + (1-41/45) - (41/1-45)<br>GDP = GNP + X - M |
| Consumption of fixed capital (Depreciation=D) | 6767 | (44/1-40) |
| Net national product at market prices (NNPm) | 75912 | (42-45/1-40) - (44/1-40)<br>NNPm = GNP - D |
| Net domestic product at market prices (NDPm) | 76527 | (42-45/1-40) + (1-41/45) - (41/1-45) - (44/1-40)<br>NDPm = GDP - D |
| Indirect taxes minus subsidies (T) | 6830 | (43/1-40) |
| Net national product at factor costs (NNPf) =<br>National Income (Y) | 69082 | (42-45/1-40) - (44/1-40) - (43/1-40) = (42/1-40) + (45/1-40)<br>NNPf = GNP - D - T = Y = W + P |
| **Income** | | |
| National Income (Y) | 69082 | (42/1-40) + (45/1-40)<br>Y = W + P |
| Compensation of employees (W) | 35915 | (42/1-40) |
| Mixed income/operating surplus (P) | 33167 | (45/1-40) |
| **Expenditure** | | |
| Gross national product (GNP) | 82679 | (42-45/1-40) = (1-41/41-45) - (41/1-45) = (1-41/41) + (1-41/42) + (1-41/43) + (1-41/44) + (1-41/45) - (41/1-45)<br>GNP = Final output - M = CPr + CG + GFCF + CHIn + X - M |
| Private consumption (CPr) | 53199 | (1-41/41) |
| Government consumption (CG) | 16060 | (1-41/42) |
| Gross fixed capital formation (GFCF) | 11368 | (1-41/43) |
| Changes in inventories (ChIn) | 1437 | (1-41/44) |
| Exports (X) | 6555 | (1-41/45) |
| Imports (M) | 5940 | (41/1-45) |

*Source*: see table 2-1.

*Table 2-3*: Gross national product of Germany in 1936, billion RM

| Production side | | Expenditure side | |
|---|---|---|---|
| Compensation of employees | 35.9 | Final private consumption | 53.2 |
| Mixed income/operating surplus | 33.2 | Final government consumption | 16.1 |
| Indirect taxes minus subsidies | 6.8 | Gross fixed capital formation | 11.4 |
| Consumption of fixed capital | 6.8 | Building 5.6 | |
| | | Equipment 5.8 | |
| | | Changes in inventories | 1.4 |
| | | Exports | 6.5 |
| | | Imports | - 5.9 |
| **Total** | **82.7** | **Total** | **82.7** |

*Source*: table 2-1.

The conventional book-keeping system of national accounts deliberately does not capture all transactions within an economy and is not in any case identical with other accounting systems, e.g. of enterprises (depreciation) or the government (budget expenditure). Two examples from our government account may serve as illustration: firstly, in order to match social security spending with the SNA classification and the input-output table, certain items were deducted from total government expenditure.[16] Social benefits or services had been provided to beneficiaries or their dependents either in kind or in cash. Cash payments were treated as redistributive transactions. As transfers to households they were not recorded in our input-output table.[17] Secondly, government was considered as a production sector registered in quadrant I (column 42). It supplied its output to final demand (minus fees for certain governmental services) without direct financial compensation. This explains why under the heading of "government consumption" only one number appears in quadrant II (cell 38/42). This "government consumption" should not be mixed up with governmental spending in a budgetary sense.

## 3. National accounts data as new benchmark for 1936

We thus can draw on a complete set of national accounts data for comparing our results with other existing figures of the same nature, which are, however, limited or fragmentary.[18]

In table 3-1, we firstly compare our results with alternative 1936-figures of the StRA. They were compiled by the department VI, section on input-output statistics (Referat Statistik der Umsatzverflechtung), but were kept secret.[19] Although the responsible department emphasized the preliminary character of the numbers, they nevertheless seem to give a rather comprehensive account of the expenditure side of German gross national product (GNP) in 1936. Aggregated, they match our GNP-figure if changes in inventory are added. Deviations concerning government consumption are probably due to another delimitation of investment, e.g. we did not consider military outlays (e.g. on building and construction) as investment. In our

16 EC/IMF/OECD/UN, System of National Accounts, Brussels 1993 (*EC,* SNA 1993), Annex IV.
17 Within the system of national accounts they „are mainly recorded in the secondary distribution of income account as transfers", *EC*, SNA 1993, p. 574.
18 For a more comprehensive comparison see our forthcoming article *Fremdling/Staeglin,* Output.
19 BA R3102 2700.

judgement, the department VI was the most competent part of the StRA to compile national accounts figures independent of fiscal sources.[20]

After the Second World War, West-German statisticians had to calculate figures on national accounts in connection with the European Recovery Programme, better known as the Marshall-Plan. The calculations were demanded by the American authorities in order to implement and subsequently to evaluate the programme. Schörry[21] was responsible for the first official national accounts concerning the American and British occupied territories, treated as *Vereinigtes Wirtschaftsgebiet*.[22] Schörry and his collaborators used the available statistical material for Germany of 1936 as a benchmark and starting point. He obviously had access at least to some of the unpublished material, which the department VI had generated before the war. In any case, he partly based his retrospective tableau of 1948/49 on this information. Schörry's aggregate figure of GNP complies exactly with the implicit aggregate expenditure-GNP of dept. VI. Arithmetically it fits the revised[23] official 63,600 m RM of national income only because Schörry assigned a rather high amount of indirect taxes to the calculation. Besides Schörry's too high amount of indirect taxes, all three sets of national accounts thus far discussed (see Table 3-1) are compatible.

Erbe did not raise hitherto unavailable sources nor did he compile anything new.[24] He drew on Schörry and other published figures of the StRA, whereas Grünig, formerly on the staff of the Reichswirtschaftskammer and after the War of the German Institute for Economic Research/ Deutsches Institut für Wirtschaftsforschung (DIW), rather independently produced national accounts figures based on his own model.[25] Unfortunately, his figures published 1948/49 are

20 Based on tax statistics, however, national income within the 1937-territory of Germany (altes Reichsgebiet) made up 65,849 m RM in 1936, Statistisches Jahrbuch für das Deutsche Reich/Statistical Yearbook of Germany *(StJR),* 1941/42, p. 604. See the internal report about the state of the art of national accounting in general and the German practice including weaknesses of the estimation procedure based on tax statistics ("Die Berechnung des Volkseinkommens und des Volksvermögens" no date, probably mid-1930s: BA R3102 4125).

21 After the war, together with Hildegard Bartels, he implemented national accounting at the Statistisches Bundesamt/Federal Statistical Office of Germany (StBA) and its forerunner; *C. Stahmer*, Organisatorischer Neuanfang und erste Berechnungen – Frühgeschichte der Volkswirtschaftlichen Gesamtrechnungen in Westdeutschland, in: Wirtschaft und Statistik, 2010, pp. 183, 187, 191-195.

22 *Ibid.*, p. 187.

23 The 1936-figure of 65,849 m RM of national income, published by the StRA, was revised downwards after the war in order to match it with the then prevailing system of national accounts (O. Schörry, Volkseinkommen und Sozialprodukt des Vereinigten Wirtschaftsgebietes im Jahre 1936 und im zweiten Halbjahr 1948, in: Wirtschaft und Statistik N. F. 1, 1949/50, p. 95; *Statistisches Amt des Vereinigten Wirtschaftsgebietes*, Abt. II Dr. Sch[örry]/Kg. (1949), Die Berechnung des Volkseinkommens (Sozialprodukt), Wiesbaden-Biebrich (Reprint in Stahmer (2010: 191-5) based on archival record in: Archive of Deutsche Bundesbank (German Central Bank) B 330/3352).

24 *R. Erbe*, Die nationalsozialistische Wirtschaftspolitik 1933-1939 im Lichte der modernen Theorie, Zürich 1958, pp. 100, 118-120.

25 Grünig was head of the central office of economic research of the Reichswirtschaftskammer (Abteilung für Zentrale Wirtschaftsbeobachtung). It was the umbrella organization of the 1934/35 newly organized associations of German enterprises. In this function, Grünig had close contacts to the StRA. *F. Grünig*, Einführung in die Arbeiten der Abteilung für Zentrale Wirtschaftsbeobachtung, in: Untersuchungen der Abteilung für Zentrale Wirtschaftsbeobachtung bei der Reichswirtschaftskammer, Einkommen, Verbrauch und Sparung in Deutschland 1929-1932-1936, Berlin 1937, (Print, classified strictly confidental, limited edition, BA R2501 6627); *Idem*, Volkswirtschaftliche Bilanzen 1936 und 1947, in: Vierteljahrshefte zur Wirt-

not always consistent with each other. We thus made a selection. Hoffmann et al. (1965), already referred to, is still considered to be the standard work on German historical national accounts.[26] Ritschl's key figure or benchmark for calculating gross national product (GNP) is his revised number of net national product at factor costs (NNP-T) which is based on the published 1936-estimate from the StRA. By complementing this national income with figures for depreciation and indirect taxes (minus subsidies) the level of GNP was calculated. This, in turn, exactly entered the expenditure side of his national accounts estimate, where private consumption was determined as residual.[27]

Besides the high level of GDP, we found a comparatively high mixed income/operating surplus. We thus confirm the findings of exceptionally high incomes and hidden profits of armament industry hitherto indicated rudimentarily and qualitatively.[28] The Statistical Office was well aware of hidden profits: an internal report from May 1941 on the profitability of industrial enterprises between 1936 and 1939 put forward that profits revealed by published balance sheets at most comprised two thirds of actual profits. They had been manipulated downwards by too high depreciation and excessive transfer to reserve.[29] Our production approach to calculate GDP revealed these hidden profits. Obviously, Hoffmann et al. are grossly mistaken in their functional income distribution, i.e. the relation between profits and wages. Striking as well is the deviation concerning "indirect taxes minus subsidies (T)". Compared with our calculations we think that the other accounts referred to inflated this position throughout by including direct taxes to some extent. This has direct consequences for converting the output from factor costs *(the StRA-benchmark of national income based on tax statistics)* to market prices (GNP) or vice versa. Our independently derived national income (*Volkseinkommen*) is thus significantly higher than calculations by other scholars, except for Hoffmann's, surprisingly. The components of final demand (quadrant II of the input-output table) agree with each other, except for Grünig. The remaining deviations still have to be explored.[30]

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schaftsforschung, 1948, pp. 5-43; *Idem,* Probleme der Zusammensetzung und Verteilung des Sozialprodukts, in: Vierteljahrshefte zur Wirtschaftsforschung, 1949, pp. 3-31*; Idem*, Arbeitseinkommen, Unternehmergewinn und Inanspruchnahme des Sozialprodukts durch die öffentliche Hand, in: Vierteljahrshefte zur Wirtschaftsforschung, 1949, pp. 179-205; see also *Stahmer*, Organisatorischer Neuanfang, pp. 180-181.

26 See footnote 4.

27 *A. Ritschl*, Deutschlands Krise und Konjunktur 1924-1934 – Binnenkonjunktur, Auslandsverschuldung und Reparationsproblem zwischen Dawes-Plan und Transfersperre, Berlin 2002, p. 292.

28 See also the summarizing discussion in *M. Spoerer*, Demontage eines Mythos? Zu der Kontroverse über das nationalsozialistische „Wirtschaftswunder", in: GG 31, 2005, pp. 423, 426-428. He quotes a number of studies on this issue. In addition, see his quantitative study, Idem, Von Scheingewinnen zum Rüstungsboom, Stuttgart 1996.

29 BA R3102 2702 F 1, 250 and 2701 F 23 ff., "depreciation on fixed capital had become a means of financing additional investment rather than being an equivalent of replacement costs […]" (F 24).

30 If the reliability grading is applied which Feinstein used for his UK historical national accounts, the aggregate figures, except for national income at factor costs (Volkseinkommen), qualify for the highest grade A, i.e. +/- less than 5 percent. See *R.C.O. Matthews et al.*, British Economic Growth 1856-1973, Oxford 1982, p. 613. See also *R. Stäglin's* (Input-Output-Rechnung: Aufstellung von Input-Output-Tabellen, Berlin 1968, pp. 75-79, 84-86) discussion of error margins concerning the census or survey material of the 1954 input-output table itself and for the subsequent compilation of this input-output table.

*Table 3-1*: Comparison of national accounts' data of Germany in 1936, m RM

| | Fremdling/ Staeglin | StRA 1938 | StBA (Schörry) 1949/50 | Grünig 1948/49 | Erbe 1958 | Hoffmann 1965 | Ritschl 2002 |
|---|---|---|---|---|---|---|---|
| **Income/production** | | | | | | | |
| Gross national product (GNP) | 82679 | *81400* | 81400 | *83600* | 81400 | | 79171 |
| Gross domestic product (GDP) | 83294 | | | | | | 79786 |
| Consumption of fixed capital (Depreciation=D) | 6767 | | 7000 | 8000 | 7000 | | 7000 |
| Net national product at market prices (NNP=GNP-D) | 75912 | | 74400 | | 74400 | 78941 | *72171* |
| Net domestic product at market prices (NDP=GDP-D) | 76527 | | | | | | *71556* |
| Indirect taxes minus subsidies (T) | 6830 | | 10800 | 10600 | 10800 | *8978* | 9795 |
| Net national product at factor costs (NNP-T) Volkseinkommen | 69082 | | 63600 | *65000* | 63600 | 69963 | 62376 |
| Compensation of employees | 35915 | | | 37700 | 37700 | 56941 | |
| Mixed income/operating surplus | 33167 | | | 27300 | 25200 | 13622 | |
| **Expenditure** | | | | | | | |
| Gross national product (GNP) | 82679 | *81400* | 81400 | | *81360** | | 79171 |
| Private consumption | 53199 | 51700 | 53200 | *55000* | 52300 | | 52621 |
| Private consumption without purchases from government | 53044 | | | | | 51852 | |
| Government consumption | 16060 | 15500 | 13200 | 9000 | 16900 | 17689 | 10715 |
| Gross fixed capital formation (GFCF) | 11368 | 13600 | *15000* | 12000 | 10410 | | 13800 |
| Net fixed capital formation (GFCF-D) | 4601 | | 8000 | 4000 | 3410 | 9000** | 6800 |
| Gross fixed capital formation of enterprises(GFCFE) | 8857 | | | | 6189 | | 8400 |
| Changes in inventories | 1437 | | | | 1150 | | 1420 |
| Exports | 6555 | 6500 | | | 5800 | | 6555 |
| Imports | 5940 | 5900 | | | 5200 | | 5940 |

*Notes*: Numbers in italics: calculation based on the given source, *rounding error (+40), ** incl. changes in inventories.

*Sources and comment*: *Fremdling/Stäglin*: Table 2-1, Military outlays are not counted as investment but government consumption; *StRA 1938*: BA R3102 2700, Abteilung VI, Referat: Statistik der Umsatzverflechtung (dept. VI, section input-output statistics); *StBA (Schörry)*: *Schörry,* Volkseinkommen, p. 96; *Grünig*: *Grünig*, Wirtschaftsforschung, pp. 9, 11, 38; Probleme, p. 4; Arbeitseinkommen, pp. 180, 185; *Erbe*: *Erbe*, nationalsozialistische Wirtschaftspolitik, pp. 99-120; *Hoffmann*: *Hoffmann et al*., Wachstum, pp. 509, 826, NNP-T without 600 m RM of foreign income; *Ritschl*: *Ritschl*, Deutschlands Krise, tables A.12, B.3-B.5, GFCF includes military outlays.

## 4. Compilation and data sources of the input-output table

By keeping to the original intention of the German Statistical Office to construct an input-output-table for Germany for the 1930s, we concentrated on the industrial census of 1936. We drew on the unpublished figures to complete a comprehensive set of input-output relations,

primary inputs and aggregate figures for 29 industrial sectors and construction (Baugewerbe). In addition to the sectors classified by the Statistical Office, agriculture, services and government are covered in the first quadrant of the table. Then data sources and estimation procedure of the categories of final demand (quadrant II) are explained, followed by a presentation of the components of primary inputs (quadrant III).

### 4.1. Industry

The industrial census of 1936 provides the key figures for the industrial part of the input output table. The data are available in three different compositions, which we label as sources (*Quellen* = Q): Q1 and Q2 are the unpublished figures, which had been gathered and partly compiled by the Statistical Office, filed in the Federal Archive/ Bundesarchiv Berlin-Lichterfelde (BA) now; Q1 contains detailed information on 326 industrial branches, namely on employment, the wage bill, intermediate input, gross production, sales, imports and exports, which allowed the quantification of the input-output relations. For each single branch, inputs are listed with the product name, quantities and values at purchasers' prices[31], thus including the margin for transportation and trade. The specific inputs of each of the 326 branches were assigned to the 30 industrial sectors and agriculture from which they presumably had been purchased. Imports were separately accounted for. The other variables were aggregated and assigned to the proper fields in the input-output matrix. Source Q2[32] summarises some of these latter figures on the same level of aggregation for the 326 branches without e.g. taking into account specific intermediate input products, though. Q1 was thus the preferred source for our detailed accounting, whereas Q2 served as a check and supplementary information on the aggregated numbers. Q2 is obviously based on Q1 and was calculated by the Statistical Office itself. In case of sometimes diverging numbers we opted for Q1.[33]

Q3 comprehends the figures published in 1939 by the German Office for Military-Economic Planning/ Reichsamt für Wehrwirtschaftliche Planung (RWP), an offshoot of the StRA. After the war, this detailed but misleading publication of 1939 was applied by the Allied Forces to determine production limits for West-German industry. The statistical offices in East and West Germany used it as base year and weights for their industrial production indices. And in economic historiography it uncritically survived in the work of Hoffmann et al.[34] The

31 In some cases, only quantities were reported. Prices or unit values were calculated from the same type of source for another branch using the same input. In a very few cases, contemporary price quotations compiled by the StRA had to be drawn upon.

32 BA R3102 5922.

33 For a description of the sources see also *Fremdling/Stäglin*, Input-Output-Tabelle; *Idem*, An Input-Output Table for Germany and a New Benchmark for German Gross National Product in 1936, Groningen 2009; *Idem*, Reconstruction of an Input-Output Table for Germany in 1936: Conceptual and Empirical-Statistical Problems, Groningen 2012; *Idem*, Reconstruction of an Input-Output Table for Germany in 1936: Conceptual and Empirical-Statistical Problems, in: *Institut für Wirtschaftsforschung Halle-IWH (Ed.)*, Neuere Anwendungsfelder der Input-Output-Analyse, Halle 2013, pp. 19-30; *R. Fremdling et al.,* British and German Manufacturing Productivity Compared: A New Benchmark for 1935/36 Based on Double Deflated Value Added, in: Journal of Economic History, 67, 2007, pp. 350-378; *R. Fremdling et al.*, Censuses Compared. A New Benchmark for British and German Manufacturing 1935/1936, Groningen 2007; for the number of the StRA documents in the BA (R3102 ….), see section 4.1.4.

34 *Hoffmann et al.,* Wachstum.

original files, however, formed the statistical starting point for the East German plan economy.[35] Thus by comparing our sources (Q1/2) with the official publication (Q3), a closer look into the genesis, background and pitfalls of the 1939-publication is possible.

### 4.1.1. Published and archive census data

A comparison of the published data of the German Office for Military-Economic Planning with the records then kept secret but available in the Federal Archives reveals that the published data seem to be reliable, at least at first glance. The publication in 1939 seems both comprehensive and detailed in comprising the entire German industry covering 30 sectors and a number of sub-sectors. In addition to net production value (*Nettoproduktionswert*) or gross value-added, it offers information on employment, wage bills, sales and exports, with no additional information given on imports. It even contains a regional breakdown according to German federal states (*Länder*) and the Prussian provinces.

Surprisingly, frankly, the foreword admits that the industrial census of 1936 was used for planning the war. The second paragraph reads:[36] "In the course of Germany's rearmament, the economic planning of warfare increasingly came to the fore. As the experience of the World War has shown for a country as Germany, a clarification of the economic problems of warfare is of paramount importance for the result of a war. In addition, there is no doubt that due to our being endowed with natural resources a war economy in Germany will be by and large a planned one by its nature. Thus its preparation essentially has to be based on thorough statistical planning." With this statement in mind, one wonders why the RWP published the information at all. The foreword justifies the publication on the grounds that filling in the detailed enquiry had caused the industrial firms a lot of trouble. Their (and the public's) desire for a published summary account was therefore considered as understandable. As the main use of the census was the economic planning of warfare, the evaluation had to be kept secret from the public, though. But the detailed accounts also delivered valuable results for pure economic questions, which justified even their publication in parts as well.[37]

Such a publication was not undisputed of course. The central command of the army accused the RWP of having violated secrecy by this publication. It demanded the withdrawal of these data from public access. The respective letters are filed in the Federal Archives in Berlin. In the letters exchanged between the heads of the two institutions, Wilhelm Leisse, head of the RWP, rejected this accusation by arguing that aggregating industrial branches had made the performance of individual industries unrecognisable.[38] In 1939, the Ministry of Economics, however, went over to prohibiting any publication and to refusing access to any statistical sources reaching back to 1914, e.g. even for the DIW.[39]

According to the correspondence between the Ministry of Economics and the RWP, it becomes clear that it was not the intention to publish false data. Although publication had been limited or forbidden, the guideline of February 1939 said: "however, all publications should still tell the truth. In case of doubt, the publication of statistical and other details should rather

35 *Fremdling/Stäglin,* Industriezensus; *Fremdling/Stäglin*, Verschleierung.
36 *Reichsamt*, deutsche Industrie, p. 3. Translated from the German original.
37 *Reichsamt,* deutsche Industrie, pp. 2-3.
38 BA R3102 3082 (letter of 18.08.1939), answered by Leisse 25.08.1939.
39 From 1936 onwards, only a limited publication had been allowed. BA R3102 3082.

be dropped than report wrong details".[40] Thus the guideline of the Ministry of Economics ruled out a deliberate falsification of the data. For reasons of camouflage, however, certain pieces of information were veiled:[41] firstly, by concealment, thus, available information on sensitive data was not given at all, e.g. on imports and stocks. Secondly, certain industrial sectors considered important for warfare were hidden by way of aggregation (Leisse's argument). Basically, the data had been collected on the level of operational or technical units or plants (*Betriebsstätten*). They then were aggregated on an intermediate level for sub-sectors or branches. Concerning the delicate sector of iron and steel, statistics were published for the entire sector, whereas on the intermediate level, four branches had been delimited. Concerning the chemical industry, the publication distinguished merely among seven branches, whereas 38 are noted in the archival records. Thirdly, certain industrial branches were hidden under misleading aggregates. The foremost example is the aircraft industry. According to the classification handled it should have fallen under 'vehicles' (Fahrzeugindustrie); it was, however, hidden under 'construction and others' (Bauindustrie und sonstige Industriezweige). Employment in the aircraft industry increased from 124,878 people in June 1936 to 176,149 people a year later.[42] Thus in 1937, it had surpassed the published work force (166,534) for vehicles.[43] A similar camouflage was applied to other branches onto which military importance was attached.[44]

The industrial census of 1936 did not collect data on building and construction (Bauindustrie). The published figures of the census, however, contain a category of building and construction and other industrial branches (Bauindustrie und sonstige Industriezweige). The figures of the aircraft industry (Flugmotoren- und Flugzeugzellenbau), gunpowder industry (Sprengstoffindustrie) and the production of detonators (Herstellung von Zündstoffen) were hidden under this category.[45] In order to eliminate building and construction from these hidden industries, the number of employees, the values of wages, gross production, net production and material inputs were adjusted by subtracting the corresponding figures. Further adjustments were necessary in order to account for small companies and for a production rate which was still too low, something which became obvious when we compiled our investment matrix as the basis of gross fixed capital formation. Building investment turned out to be significantly higher than implied by the approximate value concealed in the census publication of 1939. For estimating the inputs and the wage bill, we drew on internal calculation of the StRA: it had collected detailed data in order to construct an input-output table based on the industrial

40 BA R3102 3082 F 9. The RWP had planned further publications.

41 *Fremdling/Stäglin*, Verschleierung.

42 BA R3102 5866, 5922.

43 *Reichsamt*, deutsche Industrie, p. 58.

44 These data concern stocks in cotton industry, „*Zündererzeugung*" (BA R3102 3082 F37, 30.08.1939), „*Zündholzindustrie*" (BA R3102 3273, loose note), „*Schusswaffenindustrie*", „*Herstellung von Zündstoffen und Sprengkapseln*" and „*Sprengstoffindustrie*". See also *J. Sleifer*, Separated Unity: The Industrial Sector in 1936 in the Territory of the German Democratic Republic and the Federal Republic of Germany, in: JWG, 2001/1, pp. 133-161; *Idem*, Planning Ahead and Falling Behind, The East German Economy in Comparison with West Germany 1936-2002, Berlin 2006.

45 The archival record BA R 3102 5922 explicitly mentioned that the aircraft industry had been hidden under "other industrial branches". (see details in *Fremdling/Stäglin*, Industrieerhebung; *Fremdling/Stäglin*, Verschleierung).

census of 1933.[46] The percentage distribution of 1933 was applied to the corresponding values for 1936 in order to allocate inputs accordingly.

*Table 4-1*: Industrial employment of Germany in 1936, 1000 people

| | | Census publication Q3* | Census archive Q1/2** | Correction factor | Census Q1/2 plus correction |
|---|---|---|---|---|---|
| 3 | Mining | 565.7 | 579.2 | 1 | 579.2 |
| 4 | Fuel industries | 29.4 | 36.7 | 1 | 36.7 |
| 5 | Basic iron and steel products | 201.6 | 205.7 | 1 | 205.7 |
| 6 | Non-ferrous metals | 74.8 | 76.6 | 1 | 76.6 |
| 7 | Metal foundries | 173.6 | 179.1 | 1 | 179.1 |
| 8 | Iron and steel products | 440.0 | 453.4 | 1 | 453.4 |
| 9 | Machinery | 556.6 | 572.8 | 1 | 572.8 |
| 10 | Constructional steel | 146.4 | 149.6 | 1.33 | 199.4 |
| 11 | Vehicles and aerospace | 166.5 | 302.3 | 1.33 | 402.9 |
| 12 | Electrical engineering | 294.2 | 309.8 | 1 | 309.8 |
| 13 | Precision engineering, optics | 97.1 | 100.4 | 1.2 | 120.5 |
| 14 | Metal products | 223.1 | 228.0 | 1.2 | 273.7 |
| 15 | Stone and quarrying | 406.2 | 360.5 | 1.04 | 375.0 |
| 16 | Ceramics | 87.5 | 88.6 | 1.04 | 92.1 |
| 17 | Glass | 73.6 | 74.4 | 1.04 | 77.3 |
| 18 | Saw mills, timber processing | 107.5 | 101.4 | 1.25 | 126.7 |
| 19 | Manufactured wood products | 256.3 | 262.3 | 3.33 | 873.6 |
| 20 | Chemical industry | 181.0 | 177.7 | 1 | 177.7 |
| 21 | Chemical-technical industry | 90.4 | 87.6 | 1 | 87.6 |
| 22 | Rubber and asbestos manufacture | 57.1 | 58.1 | 1 | 58.1 |
| 23 | Manufacture of paper and paper products | 99.9 | 100.2 | 1 | 100.2 |
| 24 | Printing and duplicating | 283.6 | 287.8 | 1.2 | 345.4 |
| 25 | Leather industry | 196.0 | 196.9 | 2.2 | 433.1 |
| 26 | Textiles | 911.7 | 914.3 | 1.25 | 1142.9 |
| 27 | Clothing | 229.7 | 233.2 | 3.33 | 776.6 |
| 28 | Edible oil and fats | 38.0 | 37.9 | 1 | 37.9 |
| 29 | Spirits industry | 29.4 | 25.9 | 1.22 | 31.5 |
| 30 | Food, beverages and tobacco | 549.7 | 513.2 | 3.33 | 1709.0 |
| 31 | Building and construction | 1220.0 | 1075.7 | 1.8 | 1936.2 |
| 32 | Electricity, gas and water | 163.8 | 180.9 | 1 | 180.9 |
| | **Total Employment** | **7950.2** | **7970.2** | **1.5** | **11971.6** |

*Notes*: * in most cases June; ** in most cases average of June and December.

*Sources*: see text.

We found deviations from the published employment figures not only for vehicles but furthermore for some other sectors due to shifts among branches as well: notably fuel, the chemical industry, electricity and as mentioned above, construction significantly differ from the published figures (Table 4-1). The employment figures, however, are not strictly comparable. In the published version, workers were counted at one point in the year, usually June.

46 BA R3102 2705, F 101ff.

For our purpose, we looked for an average number of people employed, hence we took the average of June and December from the archival records. In cases where the business year did not match the calendar year, records from two other appropriate months were used. Our calculation with the archival records also cancelled out seasonal employment peaks in specific industries. In sugar production and in preserved foods, employment was overestimated in the published census figures because the number of seasonal workers was reported instead of a representative average for the whole year.

The gross value added figures (GVA) reveal even more significant deviations than the employment figures between the published data and our compilation based on the archival records (Table 4-2). In addition, this holds good for such sectors as saw mills, rubber, fats, spirits, food and utilities as well. Probably the authors of the publication had more difficulty in hiding value-added figures because productivity among employees and thus sectoral value-added diverged much more than mere numbers of workers among different industrial activities. Thus camouflage strategy towards value-added and employment might not have been pursued exactly in tandem. Concerning the aggregate figures for employment and production, it seems surprising at first glance that published figures and archival records do not show any significant deviation from each other. One should, however, keep in mind that according to the official guideline "all publications should still tell the truth".

In any case, we are sure that the true contributions of branches or sectors to aggregate production and employment deviate significantly from the figures published in 1939. So these data will inevitably produce distorted results when using them as input for further quantitative research. Thus our finding not only casts more doubt on Walther Hoffmann's et al. reconstruction of German national accounts in general but specifically on the time series on industrial output: for his indices of industrial production and handicraft, Hoffmann et al. used the published gross value added figures of the 1936-census to generate the weightings in order to compile the aggregate index of industrial production (Industrie und Handwerk) for the entire time-span from 1850 to 1959.[47]

More precisely, they proceeded as follows:[48] firstly, they matched the 30 groups of the 1936-census with their 12 groups. This was not done explicitly and can only be reproduced with some guesswork. Secondly, they multiplied the published labour productivity (gross value added per employee) of the 1936-census by employment figures of the workplace census of 1933 for each of the 12 groups. The result is a hybrid 1933/36-output based on 1933-employment and 1936-labour productivity for each group and total industry. Thirdly, each group's share in total output served as weights to combine the 12 time series, with 1913 as base year, to a single index number of total industrial output for the interwar years.

For other rather long periods, they multiplied the same 1936 labour productivity by employment data of other workplace censuses (i.e. 1861, 1882, 1907) which Hoffmann et al. considered representative. In addition to the questionable weighting scheme, Hoffmann's index numbers themselves have faced severe criticism which we need not discuss here any further.[49]

47 For details see *Fremdling*, German National Accounts (1988); *Fremdling/Stäglin*, Input-Output Table.

48 *Hoffmann et al*., Wachstum, pp. 389-395.

49 *Ritschl*, Spurious growth; *Ritschl*, Anglo-German; *Fremdling*, German Industrial Employment; *Broadberry/Burhop,* Comparative Productivity; *Broadberry/Burhop*, Resolving.

*Table 4-2*: Industrial gross value added (*Nettoproduktionswert*) of Germany in 1936, m RM

| | | Census Publication Q3 | Census Archive Q1/Q2 | Difference% (Q3-Q1/2)/Q1/2 |
|---|---|---|---|---|
| 3 | Mining | 2234.8 | 2222.5 | 0.6 |
| 4 | Fuel industries | 245.0 | 274.0 | -10.6 |
| 5 | Basic iron and steel products | 1173.6 | 1240.0 | -5.4 |
| 6 | Non-ferrous metals | 536.3 | 517.6 | 3.6 |
| 7 | Metal foundries | 710.6 | 710.5 | 0.0 |
| 8 | Iron and steel products | 1790.3 | 1776.7 | 0.8 |
| 9 | Machinery | 2615.3 | 2562.2 | 2.1 |
| 10 | Constructional steel | 558.2 | 556.3 | 0.3 |
| 11 | Vehicles and aerospace | 836.4 | 1358.0 | -38.4 |
| 12 | Electrical engineering | 1502.6 | 1464.1 | 2.6 |
| 13 | Precision engineering, optics | 367.8 | 370.2 | -0.7 |
| 14 | Metal products | 771.1 | 733.6 | 5.1 |
| 15 | Stone and quarrying | 1231.1 | 1218.4 | 1.0 |
| 16 | Ceramics | 255.3 | 248.4 | 2.8 |
| 17 | Glass | 237.5 | 233.2 | 1.8 |
| 18 | Saw mills, timber processing | 316.3 | 343.3 | -7.9 |
| 19 | Manufactured wood products | 720.8 | 708.4 | 1.8 |
| 20 | Chemical industry | 1533.9 | 1514.8 | 1.3 |
| 21 | Chemical-technical industry | 742.1 | 721.8 | 2.8 |
| 22 | Rubber and asbestos manufacture | 270.4 | 304.9 | -11.3 |
| 23 | Manufacture of paper and paper products | 461.5 | 463.3 | -0.4 |
| 24 | Printing and duplicating | 1001.5 | 1026.2 | -2.4 |
| 25 | Leather industry | 647.4 | 680.3 | -4.8 |
| 26 | Textiles | 2839.7 | 2828.1 | 0.4 |
| 27 | Clothing | 754.0 | 776.7 | -2.9 |
| 28 | Edible oil and fats | 402.8 | 726.2 | -44.5 |
| 29 | Spirits industry | 228.6 | 207.4 | 10.2 |
| 30 | Food, beverages and tobacco | 2961.5 | 3182.7 | -7.0 |
| 31 | Building and construction | 4267.0 | 3634.0 | 17.4 |
| 32 | Electricity, gas and water | 1972.1 | 1876.4 | 5.1 |
| | **Industries covered** | **34185.5** | **34480.4** | **-0.9** |

*Sources*: see text.

### 4.1.2. Improvement of the census data by covering small firms

As usual for industrial censuses, the German census of 1936 did not include all industrial firms; for certain industrial groups, data of small firms were not recorded.[50] In the published version of the census, this omission was justified by claiming "that the small companies, although large in number, did not comprise a large part of production".[51] For our purposes, however, i.e. for estimating the input-output flows and furthermore for measuring gross do-

50 The exemption list in the published version (*Reichsamt*, deutsche Industrie, pp. 44-55) is incomplete. See BA R3102 3036.

51 *Reichsamt*, deutsche Industrie, pp. 12 f.

mestic product (GDP) we needed a full coverage of the industrial sector in 1936. Our estimates revealed that the RWP rather made light of the scope of underreporting.

The estimation of the inflated values of our input-output table for Germany in 1936, i.e. gross production, wages, gross value added and thus implicitly inputs and exports is based on these employment estimations for small companies in 1936.[52] In order to estimate missing employment numbers the scope of coverage had to be taken into account. The coverage ratios, however, varied per group or specific industry. In groups which were of strategic military importance, all firms had to report to the industrial census; in groups considered of less importance in most cases, the exemption and cut-off point was less than five people employed. This rule was not followed strictly, thus production and capacity measures were applied as well. In these cases, probably due to heavy seasonal fluctuations, employment seemed to be no feasible yardstick. As guideline, however, we used the threshold of five or even ten people employed per production unit (Betriebsstätte) to close the information gap. The apportionment of employment figures according to firm size provided the most important information to estimate ratios/percentages of incomplete coverage. The non-agricultural or industrial workplace (nichtlandwirtschaftliche or gewerbliche Arbeitsstätten) censuses of 1925, 1933[53] and 1939[54] provide adequate information for the procedure. In these statistical volumes, establishments were also classified according to the number of people employed. In most cases for 1925 and 1933, size classes from 1-5 and 6-10 were used. For 1939 the more detailed classification among the sizes 1, 2-3, 4-5, 6-10, 11-20 was applied as well.[55] For the first time, the 1939 census recorded handicraft establishments (Handwerksbetriebe) separately, although this was not a statistical but a juridical category.[56] Mainly for ideological reasons, the regime tried to introduce a clear-cut distinction between industry and handicraft during the 1930s. Several laws were passed to reorganise the institutional and legal structure of entrepreneurship.

52 For a comprehensive description of the estimation procedure, see *Fremdling*, German Industrial Employment. The StRA itself planned the same procedure to bridge the gap, BA R3102 2705 F 41.

53 *StR* 462 provides a comparison between both years.

54 *StR* 568.1 for Prussia. The volume with corresponding numbers according to firm size for entire Germany (*StR* 567) was never published. After the war, detailed figures of the workplace census of 1939 were compiled for the 1937-territory, however, without taking account of the firm size. The statistics were as well split up according to the Länder/occupied zones and the territory annexed by Poland and the Soviet Union, gathered up as East of Oder/Neisse (*Länderrat des Amerikanischen Besatzungsgebiets* (1949), Statistisches Handbuch von Deutschland 1928-1944, Munich 1949 (*Länderrat*, StH1949), table 4, pp. 246-269). For internal usage, The Office of the United States Military Government for Germany compiled extensive statistics on Germany (*Office of Military Government for Germany*, Ministerial Collecting Center (1946), Statistisches Handbuch von Deutschland – Statistical Handbook of Germany, Fürstenhagen 1946 (*OMGUS,* StH1946)) after the war. Their figures from the 1939-census give detailed information on handicraft employment as well, however, not separately for the 1937-territorry *(OMGUS,* StH1946, III.A, I. u. H.A 2 a-dd). For the 1937-territory, handicraft employment with a rather crude delimitation of 20 industrial groups is given in *Länderrat,* StH1949, table 3, pp. 244 f.

55 This detailed information was also given for 1933 (*StR* 462.2, pp. 60-101). In general, however, the benchmark years of 1925 and above all of 1939 proved to be more useful for estimating coverage ratios for 1936. In 1933, the share of small companies increased above average because people, who had formerly been workless, started their own business. Thus, with the exception of food and beverages, a large part of the increase of small companies directly resulted from the former economic crisis (*StR* 462.2, p. 9).

56 *StR* 566, pp.14 f.

Unfortunately, the workplace censuses did not collect information on turnover, capacity, etc., thus for this information as well, we had to rely on the number of people employed given in the workplace censuses as a proxy for missing information. One should keep in mind, however, that the workplace census data refer to one day in the year with a seasonal peak in industrial activity (1925, June 16; 1933, June 16; 1939, May 17), whereas our employment data for 1936 are proxies for yearly averages (in most branches, precisely the arithmetic mean of the workforce at the end of June and December 1936).

The ratios of incomplete coverage were separately estimated for each industrial group or a cluster of groups. The correction factors and the inflated employment numbers per industrial group are shown in Table 4-1.

In order to extrapolate the census figures (Q1) we did not assume equal labour productivity, wages or gross output between the known sample and the estimated number of workers. We rather requested a special compilation (Sonderauswertung des Statistischen Bundesamtes) from the German Federal Statistical Office/ Statistisches Bundesamt. For the period of 2003-2005, we got figures concerning average turnover (gross production), gross value added and wages per employee classified according to firm size. Firm size was measured by the number of employees. Smaller firms were characterised by lower wages, lower labour productivity, etc. We estimated the average wage of employees working in small companies in 1936 by multiplying the ratio of e.g. average wage of firms with 1-9 people to 50 and more by the known average wage of our sample for 1936. By subsequently multiplying this average wage by the estimated number of employees working in small companies we got the wage bill for small companies. This procedure was pursued for all relevant industrial groups and all variables which had to be inflated. The relevant input-output ratios and export quotas were kept constant. Subsequently, the values derived for small industrial companies were included and thus augmented the production values originally compiled in the input-output table.

By this implementation the aggregate census values increased by the following percentages: employment 50%; wages 16%; gross value added 25%, and gross production 20%. As expected, small firms generated a low value added and paid their workers a low wage. In addition, however, these figures reflect the fact that mainly industrial branches with low wages and a moderate labour productivity were covered incompletely by the census of 1936.

### 4.1.3. Overheads of industrial branches

The industrial census of 1936 did not register the costs for overheads.[57] Thus the recorded net production values are too high. In order to correct this bias we calculated these extra costs which had to be subtracted from value added figures solely based on the production census. For this purpose, we drew on the work sheets which the Statistical Office had prepared in order to calculate specific overheads for their turnover accounts (input-output table) of Germany in 1933.[58] These various items comprised costs for insurance, rent and advertising, furthermore expenses for postage/transport, contributions to professional organizations, lawyers'/courts' fees, charitable and political donations as well as public charges. These overheads are expressed as percentages of sales or gross production.

57 *Reichsamt*, deutsche Industrie, pp. 18, 37.
58 BA R3102 2580a.

*Table 4-3*: Overheads of industrial branches in Germany in 1936

| | | Overheads | | as % of sales/gross production | | | | | | | | | in m RM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Insurance | Rent | Advertising | Postage/transport | Donations (charitable purposes) | Donations (political parties) | Contributions to professional associations | Lawyer's/court's fees | Public charges | Insurance (36) | Rent (37) | Advertising (39) | Postage/transport (35) | Donations (charitable purposes)(38) | Donations (political parties)(38) | Contributions to professional associations (39) | Lawyer's/court's fees (39) | Public charges (38) | Total of overheads | Government (38) | Other services (39) |
| | Branches of industry | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | **10** | 11 | 12 |
| 3 | Mining | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 29.0 | 0.0 | 3.6 | 72.4 | 3.6 | 7.2 | 10.9 | 3.6 | 3.6 | **134.0** | 14.5 | 18.1 |
| 4 | Fuel industries | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 7.5 | 0.0 | 0.9 | 18.7 | 0.9 | 1.9 | 2.8 | 0.9 | 0.9 | **34.7** | 3.7 | 4.7 |
| 5 | Basic iron and steel products | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 39.9 | 0.0 | 5.0 | 99.8 | 5.0 | 10.0 | 15.0 | 5.0 | 5.0 | **184.7** | 20.0 | 25.0 |
| 6 | Non-ferrous metals | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 14.2 | 0.0 | 1.8 | 35.6 | 1.8 | 3.6 | 5.3 | 1.8 | 1.8 | **65.8** | 7.1 | 8.9 |
| 7 | Foundries | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 8.8 | 0.0 | 1.1 | 22.1 | 1.1 | 2.2 | 3.3 | 1.1 | 1.1 | **40.9** | 4.4 | 5.5 |
| 8 | Fabricated iron and steel products | 0.4 | 0.5 | 0.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 12.6 | 15.7 | 15.7 | 63.0 | 3.1 | 6.3 | 9.4 | 3.1 | 3.1 | **132.3** | 12.6 | 28.3 |
| 9 | Machinery | 0.6 | 1.0 | 2.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 24.3 | 40.5 | 81.0 | 81.0 | 4.0 | 8.1 | 12.1 | 4.0 | 4.0 | **259.2** | 16.2 | 97.2 |
| 10 | Constructional steel | 0.8 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 9.6 | 0.0 | 1.2 | 24.1 | 1.2 | 2.4 | 3.6 | 1.2 | 1.2 | **44.5** | 4.8 | 6.0 |
| 11 | Vehicles and aerospace | 1.0 | 2.0 | 4.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 30.3 | 60.7 | 121.4 | 60.7 | 3.0 | 6.1 | 9.1 | 3.0 | 3.0 | **297.4** | 12.1 | 133.5 |
| 12 | Electrical engineering | 0.6 | 0.5 | 4.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 13.9 | 11.6 | 92.6 | 46.3 | 2.3 | 4.6 | 6.9 | 2.3 | 2.3 | **182.9** | 9.3 | 101.9 |
| 13 | Precision engineering, optics | 0.3 | 0.5 | 2.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 1.7 | 2.9 | 11.6 | 11.6 | 0.6 | 1.2 | 1.7 | 0.6 | 0.6 | **32.4** | 2.3 | 13.9 |
| 14 | Metal products | 0.4 | 0.5 | 0.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 5.6 | 7.0 | 7.0 | 28.2 | 1.4 | 2.8 | 4.2 | 1.4 | 1.4 | **59.2** | 5.6 | 12.7 |
| 15 | Stone and quarrying | 0.6 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 10.4 | 0.0 | 1.7 | 34.8 | 1.7 | 3.5 | 5.2 | 1.7 | 1.7 | **60.8** | 7.0 | 8.7 |
| 16 | Ceramics | 0.6 | | 0.8 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 2.1 | 0.0 | 2.7 | 6.8 | 0.3 | 0.7 | 1.0 | 0.3 | 0.3 | **14.4** | 1.4 | 4.1 |
| 17 | Glass | 0.6 | | 0.8 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 2.1 | 0.0 | 2.8 | 7.1 | 0.4 | 0.7 | 1.1 | 0.4 | 0.4 | **14.9** | 1.4 | 4.2 |
| 18 | Saw mills, timber processing | 0.6 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 5.3 | 0.0 | 0.9 | 17.8 | 0.9 | 1.8 | 2.7 | 0.9 | 0.9 | **31.2** | 3.6 | 4.5 |
| 19 | Manufactured wood products | 0.3 | 0.3 | 0.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 7.8 | 7.8 | 13.0 | 51.9 | 2.6 | 5.2 | 7.8 | 2.6 | 2.6 | **101.2** | 10.4 | 23.3 |
| 20 | Chemical industry | 0.6 | 0.1 | 1.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 18.7 | 3.1 | 46.8 | 62.4 | 3.1 | 6.2 | 9.4 | 3.1 | 3.1 | **156.0** | 12.5 | 59.3 |
| 21 | Chemical-technical industry | 0.6 | 0.1 | 1.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 7.7 | 1.3 | 19.2 | 25.5 | 1.3 | 2.6 | 3.8 | 1.3 | 1.3 | **63.9** | 5.1 | 24.3 |
| 22 | Rubber and asbestos manufacture | 0.5 | | 0.8 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 2.6 | 0.0 | 4.1 | 10.3 | 0.5 | 1.0 | 1.6 | 0.5 | 0.5 | **21.2** | 2.1 | 6.2 |
| 23 | Manufacture of paper and paper products | 0.5 | 0.2 | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 5.8 | 2.3 | 1.2 | 23.1 | 1.2 | 2.3 | 3.5 | 1.2 | 1.2 | **41.6** | 4.6 | 5.8 |
| 24 | Printing and duplicating | 0.3 | 0.2 | 1.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 5.9 | 3.9 | 19.6 | 39.1 | 2.0 | 3.9 | 5.9 | 2.0 | 2.0 | **84.2** | 7.8 | 27.4 |
| 25 | Leather industry | 0.3 | | 0.1 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 6.2 | 0.0 | 2.1 | 41.3 | 2.1 | 4.1 | 6.2 | 2.1 | 2.1 | **66.1** | 8.3 | 10.3 |
| 26 | Textiles | 0.2 | | 0.5 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 15.7 | 0.0 | 39.3 | 157.2 | 7.9 | 15.7 | 23.6 | 7.9 | 7.9 | **275.0** | 31.4 | 70.7 |
| 27 | Clothing | 0.3 | 0.4 | 1.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 8.6 | 11.5 | 28.8 | 57.7 | 2.9 | 5.8 | 8.6 | 2.9 | 2.9 | **129.7** | 11.5 | 40.4 |
| 28 | Edible oil and fats | 0.4 | | 0.2 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 6.8 | 0.0 | 3.4 | 34.1 | 1.7 | 3.4 | 5.1 | 1.7 | 1.7 | **57.9** | 6.8 | 10.2 |
| 29 | Spirits industry | 0.3 | | 0.8 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 2.6 | 0.0 | 6.8 | 17.1 | 0.9 | 1.7 | 2.6 | 0.9 | 0.9 | **33.3** | 3.4 | 10.2 |
| 30 | Food, beverages and tobacco | 0.3 | | 0.3 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 42.7 | 0.0 | 42.7 | 285.0 | 14.2 | 28.5 | 42.7 | 14.2 | 14.2 | **484.5** | 57.0 | 99.7 |
| 31 | Building and construction | 0.6 | | 0.2 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 50.7 | 0.0 | 16.9 | 169.0 | 8.5 | 16.9 | 25.4 | 8.5 | 8.5 | **304.3** | 33.8 | 50.7 |
| 32 | Electricity, gas and water | 0.6 | | 1.0 | 2.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 20.6 | 0.0 | 34.4 | 68.8 | 3.4 | 6.9 | 10.3 | 3.4 | 3.4 | **151.3** | 13.8 | 48.1 |
| | Total industry | | | | | | | | | | **420.0** | **168.4** | **629.4** | **1672.5** | **83.6** | **167.2** | **250.9** | **83.6** | **83.6** | **3559.2** | **334.5** | **963.9** |

*Source and note:* BA R3102 2580a. Calculation based on ratios of StRA for 1933.

We assumed that the percentages of 1933 could be used for our input-output table for 1936 as well and applied them to the 30 industrial branches from mining to electricity, gas and water (Table 4-3).

### 4.1.4. Details of the Industrial Census of 1936

*Classification*

For the compilation of our data, we applied the classification which the Department VII of the Statistical Office/ Statistisches Reichsamt (Abteilung VII) had used for the Industrial Census of 1936.[59] The 30 industrial sectors correspond exactly with the delimitation of the industrial part of our input-output table. Basically, the data had been collected for individual plants or industrial units (Betriebsstätten, technische Einheiten), thus not necessarily firms. They then were aggregated according to industrial branches. We aggregated the information on output, employment[60] and input derived from each of the 332 industrial sub-sectors or branches into 29 sectors or vectors (building and construction firms did not participate in the 1936-census)[61] and we assigned the inputs to the 30 industrial and other sectors of the input-output table.[62] Before discussing specific issues of sources and processing of the data, the composition and delimitation of industrial sectors is referred to.

*Industrial Sectors – Industriegruppen*

| | |
|---|---|
| I. | Mining/ Bergbau |
| II. | Fuel industries/ Kraftstoffindustrie |
| III. | Basic iron and steel products/ Eisenschaffende Industrie |
| IV. | Non-ferrous metals/ Nichteisenmetallindustrie |
| V. | Foundries/ Gießerei-Industrie |
| VI. | Fabricated iron and steel products/ Eisen- und Stahlwarenindustrie |
| VII. | Machinery/ Maschinenbau |
| VIII. | Constructional steel/ Stahl- und Eisenbau |
| IX. | Vehicles and aerospace/ Fahrzeugindustrie (einschl. Luftfahrtindustrie) |
| X. | Electrical engineering/ Elektro-Industrie |
| XI. | Precision engineering, optics/ Feinmechanische und optische Industrie |
| XII. | Metal products/ Metallwarenindustrie und verwandte Gewerbe |
| XIII. | Stone and quarrying/ Industrie der Steine und Erden |
| XIV. | Ceramics/ Keramische Industrie |

59 See BA R3102 2994: „Systematische Ordnung der Industriegruppen und -zweige für die industrielle Produktionsstatistik (Generalerhebung 1936)“ of November 1937. For a detailed description at branch level („Systematische und methodische Abgrenzung der Erhebung“) and the corresponding branches of the work place census of 1933 („Systematik d. gewerblichen Betriebszählung 1933”) see the large (70 A3 pages) file from May 1937 in BA R3102 3036 („Erhebungsplan der industriellen Produktionsstatistik, Generalerhebung für das Jahr 1936“). See also the brief “Erhebungsplan” in BA R3102 2580a.

60 In most cases the average of employment in June and December.

61 *Reichsamt*, deutsche Industrie, p. 12.

62 Inevitably sometimes arbitrary decisions were necessary when inputs bought from different branches had been lumped together by the StRA, e.g. packing (Verpackung). It was assigned by one quarter to groups (arabic numbers refer to the classification in our input-output table) XII (14) Metal products, XVII (19) Manufactured wood products, XXII (24) Printing and duplicating and XXIV (26) Textiles respectively (or in some cases fifty, fifty to XVII (19) and XXII (24)).

| | |
|---|---|
| XV. | Glass/ Glasindustrie |
| XVI. | Saw mills, timber processing/ Sägeindustrie |
| XVII. | Manufactured wood products/ Holzverarbeitende Industrie |
| XVIII. | Chemical industry/ Chemische Industrie |
| XIX. | Chemical-technical industry/ Chemisch-technische Industrie |
| XX. | Rubber and asbestos manufacture/ Kautschukindustrie |
| XXI. | Manufacture of paper and paper products/ Papier-, Pappen-, Zellstoff- und Holzstoffindustrie |
| XXII. | Printing and duplicating/ Druck- und Papierverarbeitung |
| XXIII. | Leather industry/ Lederindustrie |
| XXIV. | Textiles/ Textilindustrie |
| XXV. | Clothing/ Bekleidungsindustrie |
| XXVI. | Edible oil and fats/ Industrie der Öle und Fette, Futtermittel und tierischen Leime |
| XXVII. | Spirits industry/ Spiritusindustrie |
| XXVIII. | Food, beverages and tobacco/ Nahrungs- und Genußmittelindustrie |
| XXIX. | Building and construction/ Baugewerbe |
| XXX. | Electricity, gas and water/ Elektrizitäts- Gas- und Wasserversorgung |

*Specific remarks on the sample*

The Industrial Census of 1936 was conducted in 1937. Detailed instructions[63] guaranteed the entire operation was carried out carefully. Right from the beginning, queries were planned to assure the correctness of the results. People from the StRA even visited plants, made phone calls and exchanged letters for clarification and further details.[64]

Concerning major questions, the articulation of the questionnaire was basically the same for all industries. For every single industrial sector, however, specific suitable adaptations had been developed, e. g. for chemical plants the listed input items were comparably extensive.[65] A comparable simple, however, lucid questionnaire was used for the cement industry.[66] In contrast, for the precision engineering, optics (optische, fein- und medizinmechanische Industrie), a more comprehensive questionnaire was applied.[67] For our research, we used the versions depicting the aggregates of these branches.[68]

The first paragraph of the questionnaire deals with the aim and legal basis of the census.[69] Military economic planning was not mentioned at all. Obviously it still had to be kept secret although at least in 1934 it had come to the forefront of the plans for further development of industrial statistics.[70] Instead, the census was alleged to serve general economic purposes

63 See e. g. the 14 pages of instructions how to deal with the incoming questionnaires from firms in the metal trade (BA R 3102 3642).

64 e. g. BA R3102 2734, 6276, 4142, 2629.

65 BA R3102 3270.

66 BA R3102 5956.

67 BA R3102 6124.

68 In a first step the data of the archival records had been processed, i.e. copying data and assigning the inputs to the proper industry of origin, by using old fashioned paper and pencil in the archive itself. In a second step the data were transferred to the excel work sheets of the entry form.

69 See the example for the optical industry ("optische, fein- und medizinmechnische Industrie"), BA R3102 6124.

70 See the long report of "Arbeitsplan zur Weiterführung der Industriestatistik" of 1934, BA R3102 2992.

exclusively ("ausschließlich zu volkswirtschaftlichen Zwecken").[71] It was assured that individual results of firms would be kept secret, the usual disclaimer of such censuses. Furthermore the following was asked for on page two: address, head, legal status and membership in corporate associations of the firm or production unit. The quantitative results were then the focus of the following pages of the questionnaire.

Wages (gross salary) included the equivalent of non-monetary benefits such as free lodging and payment in kind. Inputs, including imports, were valued at the given purchasers' prices (market prices). If not available, internal accounting prices were applied.[72] Sales, including exports, were valued at producers' prices, thus the prices when leaving the factory gate or, if necessary, internal accounting prices.[73]

The 1933-census used a simplified procedure for firms of less importance. The 1936-census, however, tried to cover every firm of strategic military importance.[74] In any case, quite a number of small companies were not covered at all: in general the cut-off point was "five employees". In other cases, however, turnover, production, capacity and further criteria, e.g. strategic military relevance, were applied to determine the sample.[75]

Integrated firms comprising several stages of production were split up into technical units in order to assign the results of the questionnaires to specific branches or stages of production, i.e. a textile factory comprising spinning and weaving had to answer two separate questionnaires. Contract work and home work (Lohnarbeit, Heimarbeit) were registered separately. Finally we assigned it to "other services" of the input-output table.

In some cases, only quantities were reported. Prices or unit values were calculated from the same type of source for another branch using the same input.[76] In a very few cases, contemporary price quotations compiled by the StRA had to be drawn upon.

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71 One should keep in mind that the Statistical Office originally intended to construct an input-output table for Germany for the 1930s as a device of managing the business cycle, specifically to assess secondary effects of investments (see BA R3102 2705 F 32). Similar aims had been put forward concerning the census of 1933: "Die Produktionserhebungen erfolgen lediglich zu wirtschaftlichen Zwecken, um Aufschluß über die Verhältnisse der einzelnen Industriezweige und über deren Bedeutung für die deutsche Volkswirtschaft zu erlangen." Introduction to the questionnaire of 1933 (BA R3102 6175).

72 "Die Werte sind nach den tatsächlichen Einkaufspreisen frei Werk (einschl. bezahlten Zolls und bezahlter Verpackung, abzügl. Rabatt) zu berechnen. Für die aus eigenen Werken bezogenen Mengen ist der Marktpreis, falls dieser nicht zu ermitteln ist, der Werkverrechnungspreis zugrunde zu legen". BA R3102 5956 and 6124, note 7. For the aircraft engine industry the purchase price is labelled „Gestehungspreis frei Werk", BA R3102 5866 note 7.

73 "Die Werte sind nach den tatsächlich in Rechnung gestellten Verkaufspreisen ab Werk (einschl. berechneter Verpackung, abzüglich Rabatt) zu berechnen. [Die Ausgangsfrachten (Transportkosten von der Fabrik bis zum Bestimmungsort) sind stets – gegebenenfalls schätzungsweise – abzusetzen. BA R3102 6124, note 11]. Eine für Auslandslieferungen etwa gewährte Ausfuhrvergütung bleibt außer Betracht. Für an eigene Betriebe abgegebene Erzeugnisse ist der Marktpreis, falls dieser nicht zu ermitteln ist, der Werkverrechnungspreis zugrunde zu legen". BA R 3102 5956, note 11.

74 BA R3102 2993.

75 On this and the following see *Reichsamt*, deutsche Industrie, pp. 12 f. In an archival file (BA R3102 3036) the completeness of the census and the criteria for leaving out firms is described in every detail. The StRA planned to estimate missing numbers by using employment for extrapolation (BA R3102 2705 F 41).

76 E.g. basic iron and steel products.

*Specific remarks concerning single branches*
The archival records used for our research are the aggregated results of the technical units falling under the following branches. In several cases, however, the detailed branches below were split up further into sub-branches.

*Industrial sectors and branches in detail: Source Q 1*
(Statistisches Reichsamt, Bundesarchiv Berlin-Lichterfelde BA R3102 …. )[77]

I. Mining/ Bergbau
*Source: BA R3102 3545*

1. Eisenerzbergbau
2. Kupfererzbergbau
3. Blei-Zinkerzbergbau
4. Schwefelkiesbergbau
5. Sonstiger Metallerzbergbau
6. Stein- und Kalisalzbergbau
7. Salinen
8. Gewinnung von Sole
9. Steinkohlenbergbau
10. Kokereien
11. Preßsteinkohlenfabriken
12. Braunkohlenbergbau
13. Braunkohlenbrikettfabriken
14. Erdölgewinnung
15. Graphitbergbau und Graphitaufbereitung
16. Fluβspatbergbau und Fluβspataufbereitung
17. Bernsteingewinnung und -verarbeitung

II. Fuel industries/ Kraftstoffindustrie
*Sources: BA R3102 3545, 3270, 3276*

1. Steinkohlenschwelereien
2. Braunkohlenschwelereien (einschl. Gewinnung von Generatorteer)
3. Schieferschwelereien
4. Torfschwelereien
5. Herstellung von Montanwachs
6. Steinkohlenteerdestillation[78]
7. Benzolreinigungsanstalten
8. Gewinnung von Benzin und anderen Mineralölderivaten
9. Herstellung von mineralischen Schmierölen und -fetten
10. Herstellung von technischen Ölen und Fetten

77 Source Q2 (BA R3102 5922) summarizes the figures on the same level of aggregation for the 326 branches without taking into account specific intermediate input products, though.

78 In BA R3102 6276 we found a much more detailed questionnaire: Obviously people from the StRA had visited a factory and had discussed specific questions with representatives of the enterprise.

III. Basic iron and steel products/ Eisenschaffende Industrie
*Sources: BA R3102 3288, 3544*

1. Hochofenwerke
2. Flußstahlwerke (einschl. der damit verbundenen Stahlformgießereien)
3. Schweißstahlwerke
4. Warmwalzwerke (einschl. der damit verbundenen Hammer- und Preßwerke)

IV. Non-ferrous metals/ Nichteisenmetallindustrie
*Sources: BA R3102 4152, 3274*

1. Kupfer-, Blei- und Silberhütten
2. Kupferraffinerien und Kupferelektrolysen
3. Gold- und Silberscheideanstalten
4. Zinkhütten[79]
5. Zinnhütten und Entzinnungsanstalten
6. Tonerdefabriken
7. Aluminiumhütten
8. Gewinnung von Nickel und Kobalt
9. Gewinnung von Wolfram, Molybdän und anderen Metallen
10. Herstellung von Ferrolegierungen, Elekrorund, Karborund
11. Walz-, Preß- und Hammerwerke der Nichteisenmetallindustrie
12. Herstellung von Warmpreßteilen der Nichteisenmetallindustrie
13. Metallschmelzereien

V. Foundries/ Gießereiindustrie
*Sources: BA R3102 3288, 3544*

1. Eisen-, Temper- und Stahlgießereien
2. Metallgießereien

VI. Fabricated iron and steel products/ Eisen- und Stahlwarenindustrie[80]
Sources: BA R3102 3288, 3544

1. Drahtwarenindustrie
2. Werkzeugindustrie
3. Blechwarenindustrie
4. Schloß- und Beschlägeindustrie
5. Feine Schneidwarenindustrie (einschl. Schlägereien)
6. Fahrzeugteilindustrie
7. Herd- und Ofenindustrie
8. Schußwaffenindustrie
9. Sonstige Zweige der Eisen- und Stahlwarenindustrie

79 We found input figures for Berlin only (BA R3102 4152). Using "national" energy consumption, based on Q2, the input numbers of this industrial branch were extrapolated onto national level.

80 All branches together are conveniently summarized in BA R3102 3544.

VII. Machinery/ Maschinenbau
*Sources: BA R3102 6193, 3541*

1. Werkzeugmaschinenindustrie
2. Textilmaschinenindustrie
3. Herstellung von Maschinen für das Bekleidungsgewerbe
4. Landmaschinenindustrie
5. Herstellung von Maschinen und Apparaten für die Papierherstellung, Papierverarbeitung und für das graphische Gewerbe
6. Büromaschinenindustrie
7. Herstellung von Maschinen und Apparaten für Müllerei, Nahrungsmittel- und
8. Genußmittelindustrie u.ä.
9. Armaturenindustrie
10. Sonstiger Maschinenbau
11. Kessel- und Apparatebau

VIII. Constructional steel/ Stahl- und Eisenbau
*Source: BA R3102 3544*

1. Stahlbau
2. Waggonbau
3. Feld- und Werkbahnwagenbau
4. Schiffbau

IX. Vehicles and aerospace[81]/ Fahrzeugindustrie (einschl. Luftfahrtindustrie)
*Sources: BA R3102 3540, 4151*

1. Kraftfahrzeugindustrie
2. Herstellung von Kraftfahrzeuganhängern und Kraftfahrzeugaufbauten
3. Fahrradindustrie und Herstellung von Kinderwagen
1. Flugmotorenbau
2. Flugzeugzellenbau

X. Electrical engineering/ Elektro-Industrie
*Sources: BA R3102 3546, 6124*

1. Herstellung von elektrischen Maschinen, Apparaten und Zubehör der Stark- und Schwachstromindustrie
2. Kabelindustrie
3. Elektrokohleindustrie
4. Batterie- und Elementenindustrie
5. Akkumulatorenindustrie
6. Glühlampen- und Leuchtröhrenindustrie

81 The Reichsluftfahrtministerium (Ministry of Aviation) supplied specific equipment for airplanes without charging anything. The values of these deliveries were neither included in the recorded production value nor as input (BA R3102 3028 F 6). Of course these values were accounted for at the respective downstream branches producing these deliveries.

XI. Precision engineering, optics/ Feinmechanische und optische Industrie
*Sources: BA R3102 6124, 6245, 3275*

1. Optische, fein- und medizin-mechanische Industrie
2. Herstellung von orthopädischen Erzeugnissen und hygienischen Bandagen
3. Großuhrenindustrie
4. Taschen- und Armbanduhrenindustrie

XII. Metal products /Metallwarenindustrie und verwandte Gewerbe
*Sources: BA R3102 4152, 3274, 6017, 3546, 3275, 3279*

1. Metallwarenindustrie
2. Bronzefarbenfabriken
3. Herstellung von metallischen Überzügen
4. Schriftgießereien
5. Herstellung von Stempelapparaten und Gummistempeln
6. Edelmetall- und Schmuckwarenindustrie
7. Füllhalterindustrie
8. Bearbeitung technischer Diamanten
9. Bearbeitung von Schmuckdiamanten, Edel-, Halbedel- und synthetischen Edelsteinen
10. Harmonikaindustrie
11. Orchesterinstrumentenindustrie
12. Herstellung von Saiten aller Art
13. Herstellung von Sprechmaschinen
14. Herstellung von Schallplatten
15. Spielwarenindustrie (einschl. Herstellung von Christbaumschmuck)

XIII Stone and quarrying/ Industrie der Steine und Erden
*Sources: BA R3102 3279, 3545*

1. Steinbruchindustrie und Natursteinbearbeitung
2. Schieferindustrie
3. Gewinnung von Findlingquarziten und sonstigem Quarzitgestein
4. Gewinnung und Aufbereitung von Naturasphaltgestein
5. Mineralmühlen- und Aufbereitungsbetriebe
6. Baukies- und Bausandgruben und -baggereien
7. Glassand-, Formsand-, Klebsand- und sonstige Quarzsandgruben
8. Kieselgurgruben
9. Gewinnung und Bearbeitung von Torf
10. Gewinnung und Aufbereitung van Kreide
11. Farberdegruben
12. Kieselkreidegruben
13. Schwerspatgruben
14. Speckstein- und Talkumgruben
15. Feldspatgruben und -werke
16. Rohton- und Bleicherdegruben
17. Kaolingruben (einschl. Aufbereitungsanlagen)
18. Kalkindustrie

19. Magnesitgruben
20. Zementindustrie
21. Gipsindustrie
22. Mörtelwerke
23. Edelputzwerke
24. Ziegelindustrie
25. Kalksandsteinindustrie
26. Bimsbaustoffindustrie
27. Schlackenindustrie
28. Betonwaren- und Betonwerksteinindustrie
29. Asbestzementindustrie
30. Leichtbauplattenindustrie
31. Steinholzindustrie
32. Herstellung von Korkstein- und Kieselgurwaren und sonstigen Erzeugnissen für Temperatur- und Schallschutz
33. Industrie feuer- und säurefester Erzeugnisse
34. Steinzeugindustrie

XIV. Ceramics/ Keramische Industrie
*Sources: BA R3102 3279, 3545*
1. Feinkeramische Industrie
2. Schleifmittelindustrie

XV. Glass/ Glasindustrie
*Sources: BA R3102 5986, 5987*
1. Glashüttenindustrie
2. Hohlglas veredelnde und Glas verarbeitende Industrie
3. Flachglas veredelnde Industrie

XVI. Saw mills, timber processing/ Sägeindustrie
*Source: BA R3102 3273*
1. Sägewerke (einschl. Schwellen- und Mastenfabriken)
2. Hobelwerke
3. Furnierwerke
4. Holzimprägnieranstalten

XVII. Manufactured wood products/ Holzverarbeitende Industrie
*Source: BA R3102 3273*
1. Sperrholzindustrie
2. Möbel- und Bauteileindustrie
3. Klavier-, Harmonium- und Orgelbau
4. Holzwarenindustrie
5. Holzmehlindustrie
6. Faßholzsägerei und Faßindustrie
7. Kistenindustrie

8. Holzwolleindustrie
9. Stuhlrohrfabriken
10. Weidenschälereien
11. Korbwaren- und Korbmöbelindustrie
12. Herstellung von Schilfrohr- und strohgeweben, Flaschenhülsen und Trinkhalmen
13. Korkindustrie
14. Borsten-, Faserstoff- und Haarzurichtereien
15. Bürsten- und Pinselindustrie
16. Herstellung von Waren aller Art aus chemischen Kunststoffen sowie aus natürlichen Schnitz- und Formerstoffen

XVIII. Chemical industry/ Chemische Industrie
*Source: BA R3102 3270*

1. Schwefelsäureindustrie
2. Sulfat- und Salzsäureindustrie
3. Sodaindustrie
4. Alkalielektrolyse-Industrie
5. Herstellung von Wasserstoffsuperoxyd, Natriumperborat, u.a. Perverbindungen
6. Herstellung von Schwefel. Schwefelkohlenstoff und Rhodanverbindungen
7. Herstellung von Cyan- und Eisencyanverbindungen
8. Wasserglasindustrie
9. Herstellung van Metallsalzen u.a. Chemikalien
10. Stickstoffindustrie
11. Industrie des Phosphors
12. Karbid- und Kalkstickstoffindustrie
13. Thomasschlackenmühlen
14. Holzverkohlungsindustrie
15. Herstellung von Essigsäure aus Acetylen
16. Lösungsmittelindustrie
17. Industrie der organischen Säuren und ihrer Salze
18. Industrie der organischen Zwischenprodukte
19. Teerfarbenindustrie
20. Pharmazeutische Industrie
21. Bearbeitung von Drogen
22. Industrie der ätherischen Öle und Riechstoffe
23. Herstellung von Gerb- und Farbstoffextrakten
24. Herstellung von Nitrozellulose und davon abgeleiteten Produkten
25. Herstellung von Acetylzellulose, Viskosefolien u.a. Zelluloseprodukten
26. Photochemische Industrie
27. Industrie der Kunststoffe
28. Sprengstoffindustrie
29. Herstellung von Zündstoffen und Sprengkapseln
30. lithopone-, Blancfix- und Titanweiβindustrie
31. Herstellung von Bleiweiß, Bleiglätte und Bleinmennige
32. Buntfarbenindustrie

33. Bleicherdeindustrie
34. Herstellung von Zinkweiß
35. Erdfarbenindustrie
36. Ruß- und Schwärzeindustrie
37. Herstellung von verdichteten Gasen
38. Aktivkohleindustrie

XIX. Chemical-technical industry/ Chemisch-technische Industrie
*Sources: BA R3102 3276, 3275, 3273*

1. Pyrotechnische und Zündwarenindustrie
2. Zündholzindustrie[82]
3. Herstellung von Glühstrümpfen
4. Herstellung von Naturharzprodukten
5. Herstellung von Klebstoffen
6. Lack- und Anstrichmittelindustrie
7. Herstellung von Druckfarben und Druckwalzenmasse
8. Farbwarenindustrie
9. Bleistiftenindustrie
10. Herstellung von Linoleum, Wachstuch, Kunstleder und verwandten Erzeugnissen
11. Dachpappenindustrie (included in II.6)
12. Wachsveredelungsindustrie
13. Herstellung von Kerzen und Wachserzeugnissen
14. Stearinindustrie
15. Seifen-, Waschmittel- und Glyzerinindustrie
16. Kosmetische Industrie
17. Herstellung von Hilfsmitteln für die Textil- und Lederindustrie
18. Herstellung von Atemschutz- und Frischluftgeräten

XX. Rubber and asbestos manufacture/ Kautschuk- und Asbestindustrie
*Source: BA R3102 3543*

1. Herstellung von Kautschukwaren (ausgenommen Bereifungen und Gummischuhe)
2. Bereifungsindustrie
3. Gummischuhindustrie
4. Herstellung von Kautschuk-Regeneraten, -Plastikaten und -Präparaten
5. Herstellung von Guttapercha- und Balatawaren
6. Asbestindustrie

XXI. Manufacture of paper and paper products/ Papier-, Pappen-, Zellstoff-, und Holzstoffindustrie
*Source: BA R3102 3277*

1. Holzschleifereien
2. Zellstoffindustrie
3. Papier- und Pappenfabriken

82 A loose note (BA R3102 3273) contains the remark: "nicht in 'Die Deutsche Industrie' enthalten." Thus, not included in the 1939-publication of the census results.

XXII. Printing and duplicating/ Druck und Papierverarbeitung
*Source: BA R3102 3277*

1. Papierveredelungsindustrie
2. Druckgewerbe
3. Chemigraphisches Gewerbe
4. Buchbindereien
5. Papierwarenindustrie
6. Pappenverarbeitende Industrie
7. Tapetenindustrie

XXIII. Leather industry/ Lederindustrie
*Sources: BA R3102 3542, 5915, 5916*

1. Lederfabriken und Gerbereien
2. Lederzurichtereien
3. Schuhindustrie
4. Ledertreibriemenindustrie (einschl. Herstellung technischer Lederartikel)
5. Leder- und Sattlerwarenindustrie
6. Lederhandschuhindustrie

XXIV. Textiles/ Textilindustrie
*Source: BA R3102 3281*

1. Kunstseiden- und Zellwollindustrie
2. Wollwäscherei
3. Wollwäscherei und Wollkämmerei
4. Kammgarnspinnerei und -zwirnerei
5. Reißereien
6. Streichgarnspinnerei und -zwirnerei
7. Baumwollspinnerei und -zwirnerei
8. Flachs- und Hanfrösterei
9. Flachspinnerei und -zwirnerei
10. Hanf- und Hartfaserspinnerei und -zwirnerei
11. Jutespinnerei und -zwirnerei
12. Ramiespinnerei und -zwirnerei
13. Seidenweberei
14. Bekleidungsstoffweberei
15. Baumwollweberei
16. Baumwollsamt- und Velvetweberei
17. Schwerstoffweberei
18. Teppichweberei
19. Möbelstoffweberei
20. Leinenweberei
21. Juteweberei
22. Sonstige Weberei
23. Strumpfstrickerei
24. Strumpfwirkerei

25. Stoffhandschuhindustrie
26. Strickhandschuhindustrie
27. Kulierhandschuhindustrie
28. Trikotagenindustrie
29. Phantasiewirkerei und -strickerei
30. Nähfäden-, Stopf-, Stick- und Handarbeitsgarnherstellung
31. Herstellung von Band- und Flechtartikeln, Posamenten usw.
32. Herstellung von Stickereien, Spitzen usw.
33. Herstellung van Zelten, Planen, Säcken
34. Filzherstellung
35. Industriewatteherstellung
36. Verbandwatteherstellung
37. Herstellung van Verbandmitteln
38. Roßhaarspinnerei und -stepperei
39. Netzindustrie
40. Textilausrüstungs- und Veredelungsindustrie

XXV. Clothing/ Bekleidungsindustrie
*Sources: BA R3102 3615, 5916*

1. Bekleidungsindustrie
2. Pelzveredelung
3. Pelzverarbeitung

XXVI. Edible oil and fats/ Industrie der Öle und Fette, Futtermittel und tierischen Leime
*Sources: BA R3102 3636, 3276, 3019*

1. Ölmühlen
2. Ölveredelungsindustrie
3. Talgschmelzen
4. Schmalzsiedereien
5. Margarine- und Speisefettfabriken
6. Abdeckereien
7. Knochenverwertungsindustrie
8. Fischmehl- und Tranfabriken
9. Herstellung von Haut- und Lederleim, Gelatine und Kunstdärmen
10. Futtermittelindustrie

XXVII. Spirits industry/ Spiritusindustrie
*Source: BA R3102 3638*

1. Landwirtschaftliche Kartoffelbrennereien
2. Melassebrennereien
3. Hefelüftungsbrennereien
4. Spiritusreinigungsanstalten und Spiritusvergällung in Monopollägern
5. Kornbrennereien
6. Weinbrennereien
7. Herstellung von Trinkbranntwein aller Art

XXVIII. Food, beverages and tobacco/ Nahrungs- und Genußmittelindustrie
*Sources: BA R3102 3638, 3282*

1. Getreidemüllerei
2. Schälmühlen
3. Brotindustrie und Bäckereien
4. Fleischwarenindustrie
5. Fischindustrie
6. Zuckerindustrie
7. Süßwarenindustrie
8. Herstellung von Kunsthonig
9. Obst- und Gemüsekonservenindustrie
10. Herstellung von Rheinischkraut
11. Obstsaft- und Fruchtweinindustrie
12. Dauermilchindustrie
13. Schmelzkäseindustrie
14. Teigwarenindustrie
15. Kartoffeltrocknerei
16. Stärke- und Stärkeveredelungsindustrie
17. Nährmittelindustrie
18. Kaffee-Ersatz-Industrie
19. Malzindustrie
20. Brauindustrie
21. Traubenschaumweinindustrie
22. Mineralwasserindustrie
23. Essigindustrie
24. Senfindustrie
25. Gewürzindustrie
26. Tabakindustrie

XXIX. Building and construction/ Baugewerbe
Not included in the 1936-census

XXX. Electricity, gas and water/ Elektrizitäts-, Gas- und Wasserversorgung
*Sources: BA R3102 3546, 6237, 6124, 3545*

1. Elektrizitätswerke
2. Fernheizwerke (not found)
3. Gaswerke
4. Wasserwerke (for output and input only quantities were reported)

### 4.2. Agriculture, forestry and fishery[83]

The estimation of the labour force is based on the occupational census of 1933/35. This census is superior to the workplace census, in particular in agriculture, because it also covers small holdings up to 0.5 hectares.[84] After the census had also been conducted for Saarland in 1935, the StRA published a special edition of the StR[85] adding up the numbers of 1933 and 1935. Thus the StRA considered the results of 1933 as representative of 1935 as well. Furthermore, due to reduced unemployment, this category was not presented in detail anymore but just in the summary table on the first pages of the volume.[86] The rather low official share of unemployment – agriculture is notorious for hidden unemployment[87] – made up 3.3% in 1933 and 1.8% just for Saarland in 1935.[88] It is reasonable to assume that this share decreased in 1936. We decided to take the total labour force, i.e. employed and unemployed[89] people (Erwerbspersonen), of the 1933/35 census as a proxy for fully employed labour in 1936. In spite of rather low unemployment in 1936, one can even argue that this proxy is a lower bound estimate: the StRA also collected figures on second jobs: 1.694 m people out of the 2.332 m employed (Erwerbstätige mit Nebenberuf) worked in agriculture as well.[90] This involvement probably accounted for a substantial part of labour input, because mere allotment gardening and comparable activities did not fall under this category[91]. Thus in 1936, the total labour force of German agriculture, forestry and fishery comprised 9.388 m people, of which 9.220 m fell to agriculture, horticulture and stockbreeding and 168,600 to forestry and fishery.[92]

For the estimation of intermediate input, wage bill and sales of German agriculture, we followed the procedure of the StRA. In 1934, the StRA published a detailed account on expenditure for intermediate inputs, wage bill and investment of the German agricultural sector.[93] The assessment was based on official and private statistics, the relevant literature and direct information from professional organisations and experts. Total expenditure was broken down into 14 categories, two of which contained information on new buildings and replacement of machines and equipment, thus investment. All the others dealt with current spending thus

83 The working paper and article by *R. Fremdling* ((Re)Construction Site of German Historical National Accounts, German Agricultural Employment, Production and Labour Productivity: A New Benchmark for 1936 and a Note on Hoffmann's Tales, Groningen 2008) on this issue provide a comprehensive discussion of our sources and estimation procedure. Some of the then preliminary figures were improved in the course of our work on finishing the input-output table between 2009 and 2012.

84 *StR* 461 I, p. 8.

85 *StR* 470 II.

86 *StR* 470 II, Vorbemerkung.

87 *Wirtschaft und Statistik* (*WS)* 1940, p. 334.

88 *StR* 453 II, p. 30; 469 II, p. 26.

89 These comprised 309,968 people, *StR* 470 II, p. 4.

90 *StR* 470 II, p. 9.

91 *StR* 453 II, p. 27.

92 Source: *StR* 470 II, pp. 4, 10. The relevant figures for Saarland in 1935 are respectively: 45,354; 44,695 and 659 (*StR* 469 II, p. 26). For 1939, the following figures concerning the two branches of agriculture are reported: Greater German Reich 10,616,276 and 231,240; Sudetenland 423,648 and 16,134; Austria without Vienna 1,365,439 and 29,187; Vienna 27,496 and 679 (*StR* 556 I, *StR* 557.6, 27, 28 p. 4). On employment see also *S. Degler/J. Streb*, Die verlorene Erzeugungsschlacht: Die nationalsozialistische Landwirtschaft im Systemvergleich, in: JWG 2008/1, pp. 169 f.

93 Der Betriebsaufwand der deutschen Landwirtschaft, in: *WS,* 1934, pp. 518-521.

intermediate input and wages for dependent agricultural workers. The first published table presented data for the business years from 1924/25 up to 1933/34.[94] In addition to this, the StRA took over estimations of aggregate sales produced by the Institut für Konjunkturforschung (IfK, Wochenbericht).[95] The StRA conceded that the estimation yielded no more than a rough magnitude ("ungefähre Größenordnung"). Data based on the same estimation procedure nevertheless became the standard for assessing agricultural input and output in Germany after this first publication. On a regular basis, they were published in the official statistical yearbooks[96] and for explanation of the estimation procedure, the StRA always referred to the 1934-article in Wirtschaft und Statistik (WS).[97]

For our purposes, the data of the StRA were used as starting point.[98] For the year of 1936, the average of the business years of 1935/36 and 1936/37 was calculated in order to obtain the magnitude of agricultural input, wages and output. To allocate the inputs towards those sectors which delivered the goods and services, an unpublished compilation by the StRA was applied.[99] This had been compiled to prepare the basic data for the intended, but never finished, input-output table of the StRA. Based on the published data on agricultural expenditure in 1933/34[100], the StRA had assigned values to different sectors of origin. For this task, the percentage distribution was used to allocate the figures for 1936 in the same manner. After having constructed the investment matrix these preliminary figures[101] had to be corrected and improved by reallocating significant parts of agricultural spending to investment rather than current input, e.g. machinery, electrical engineering, manufactured wood products and building and construction.[102] In doing so, gross value added was augmented. Furthermore the balancing procedure dissolved the position of "sectors not covered".[103] The wage bill for workers in agriculture, horticulture and stockbreeding comprised 1,764 m RM in 1936. Total sales made up 9,009 m RM. Adding to this one third as production for own consumption gross output amounted to 11,981 m RM.[104]

Finally, the estimations of output, intermediate input and the wage bill for forestry and fishery were based on the unpublished source of the StRA as well.[105] Output was assumed to comprise 10% of the other agricultural output without production, for own consumption, thus amounting to 901m RM in 1936. This ratio is confirmed by figures in the archival source mentioned and

94 *Ibid*., p. 518.
95 On this see *W. Bauer/P. Dehen*, Landwirtschaft und Volkseinkommen, in: Vierteljahrshefte zur Wirtschaftsforschung 13, 1938/39, pp. 413 f.
96 See the last edition of *StJR,* 1941/42, p. 623.
97 *Hoffmann et al.* (Wachstum, p. 315) relied on these data for calculating agricultural input whereas for output they pursued a different strategy (*Ibid*., pp. 265-334).
98 *StJR* 1941/42, p. 613.
99 BA R3102 2705.
100 *StJR* 1935, with reference to the 1934-article (*WS*, Betriebsaufwand).
101 See *Fremdling,* (Re)Construction German Agricultural Employment; *Idem*, German Agricultural Employment, Production and Labour Productivity: A New Benchmark for 1936 and a Note on Hoffmann's Tales, in: JWG 2010/1, pp. 215-228.
102 See *StJR* 1941/42, p. 613, where it is confirmed that certain spending on investment had been counted as current input.
103 *Fremdling,* German Agricultural Employment, table 3.
104 *IfK*, Wochenbericht 9/2, p. 128; *Bauer/Dehen*, Landwirtschaft, p. 414 with slightly different figures.
105 BA R3102 2705.

for 1935 furthermore by the statistics on turnover taxes.[106] For forestry and fishery, the different items for inputs and wages were assigned according to their relative values for 1933.

### 4.3. Services

Services include wholesale and retail trade, transport and communications, banking and insurance, dwelling, other services and domestic services. They are dealt with separately. In contrast to the industrial branches, the input-output figures of services had to be estimated to a large extent: as for agriculture, we used as a major source an unpublished compilation by the StRA.[107] These numerous handwritten working sheets comprise notes, source descriptions, numbers, calculations, conceptual tables, draft schemes etc., thus basic and rudimentary data for the intended, but never finished, input-output table of the StRA for the benchmark year of 1933. For a number of services, we applied the input/cost structure of 1933 and allocated the estimated input/cost volume to the different items. Besides contemporary sources, we also drew on structural relations or typical ratios which the StRA itself had generated for years after 1936 or (in rather a few cases) which researchers had compiled for post-war input-output tables.

#### 4.3.1. Wholesale and retail trade

For 1936, figures on production or value added cannot directly be compiled from available statistics or archival sources. Thus they had to be estimated. The starting point was the turnover statistics for Germany, 1935 (Umsatzsteuerstatistik), categories XXIV/VI 3-5 (Großhandel, Hilfsgewerbe des Handels) and XXV (Einzelhandel).[108]

In order to determine gross production, the gross income ratio (Rohertragsquote) had to be estimated. This was derived from the margin between the buying and selling price (Handelsspanne). The ratio of value added plus the costs of inputs in relation to turnover is the gross income ratio. Based on figures for mainly 1929, 1933 and for 1935 the detailed work sheets[109] of the German Statistical Office (combined with comprehensive special publications by the StRA[110]) allow the calculation of the gross income ratios both for wholesale (result: 0.162) and retail trade (result: 0.247) and moreover of wage and profit shares and the cost structure. Inputs were assigned according to the cost structure and additional detailed information from the work sheets of the StRA and for refinement of the industrial inputs from the input-output table of the DIW concerning the Federal Republic of Germany in 1954.[111]

Gross income ratio of wholesale: for 1929 the StRA collected margins for 18 branches of wholesale.[112] We assigned them directly or analogously to 61 branches delimitated in the

106 Ibid., F 50, F 63; *StR*, 511, Umsatzsteuerstatistik, I, pp. 79, 85, 165, 180.
107 BA R3102 2705.
108 *StR* 511, the categories match the classification of the StRA for the workplace census.
109 See BA R3102 2705, F 114 – F 150.
110 StRA, Betriebsstruktur und Kostengestaltung in wichtigen Gewerbezweigen, Eine Sammlung von Richtzahlen, (Einzelschriften zur Statistik des Deutschen Reichs, No. 38) I-III, Berlin 1938, I: Handwerk, II: Einzelhandel, Gaststätten und Beherbergungsgewerbe; III: Großhandel, (*StRA,* Betriebsstruktur). The figures were based on a survey in 1935. In addition, we drew on comparable data from *StJR* (1941/42, p. 603) and *StJR* (1938, p. 557).
111 *Stäglin*, Input-Output-Rechnung.
112 BA R3102 2705 F 115f.

turnover statistics for 1935.[113] Result: 0.162. The same procedure was followed for retail: more handwritten sheets[114] had to be consulted, however, and moreover the printed source on "Betriebsstruktur" published in 1938 and the statistical yearbook were taken into account as well.[115] Result: 0.247. In Table 4-4 our figures are compared with alternative estimates for other benchmark years.

*Table 4-4*: Trade gross income ratios (Rohertragsquoten/Handelsspannen) in Germany in percent of turnover, 1935, 1953 and 2006

| Year | Wholesale | Retail | Source |
|---|---|---|---|
| 1935 | 16.2 | 24.7 | *Fremdling/Stäglin* (see text) |
| Early 1950s | 13.3 | 22.4 | Priess respectively Ott, quoted by *Reitter* |
| Early 1950s | 14.4 | 22.6 | Reitter |
| Early 1950s | | 21.2 | IFO, quoted by *Reitter* |
| 2006 | 17.0 | 32.0 | *Statistisches Bundesamt* |

*Sources*: *Reitter*, Groß- und Einzelhandelsspannen, pp. 23-61; *StJB* 2009, p. 407.

Employment is based on the workplace censuses 1933/35[116] and 1939. The planned volume no. 567 of the 1939-statistics for the entire German Empire (Bd. 567, Reichsergebnisse) was never published. The 1939-figures for the German territory in the boundaries of 1937 (thus including Saar) were calculated from the published results for the German federal states (Länder).[117] The 1936 employment figures are derived by linear interpolation between the benchmark years 1933/35 and 1939 (Table 4-5).

*Table 4-5*: Labour force in wholesale (Großhandel) and retail trade (Einzelhandel) in Germany

| Categories / Gewerbeabteilungen | | 1933/35 | 1939 | 1936 |
|---|---|---|---|---|
| 1) XXVI 3-5/25.2-4, 7 | Handelsvermittlung etc. | 287458 | 196238 | 241848 |
| 2) XXIV/23.00.00 | Großhandel | 681243 | 839098 | 760171 |
| 1) + 2) | Großhandel+ | 968701 | 1035336 | 1002019 |
| XXV/24.00.00 | Einzelhandel | 1937441 | 1977080 | 1957261 |

*Note*: The deliminations of the categories for wholesale (1 and 2) do not match exactly.

*Sources*: 1933/35, *StR* 462, 470; 1939, *StR* 568; 1936, Linear interpolation.

The estimation procedure for gross income/production is described step by step:

1. Gross income or gross production (Rohertrag) in 1935 (excluding the territory of Saar) was derived by multiplying turnover (Umsatz) by the gross income ratios (Rohertragsquoten).
2. The Saar-territory was included by extrapolating its share of employment in 1936.

113 *StR* 511, III, pp. 10-21.
114 R3102 2705 F 141 f., F 143, F 147.
115 *StRA,* Betriebsstruktur; *StJR* 1941/42, p. 603; *StJR* 1938, p. 557.
116 In 1935 Saar employment was counted, see *StR* 462 and 470:Gewerbliche Betriebszählung 1933; Die berufliche und soziale Gliederung der Reichsbevölkerung 1933, 1935.
117 See *StR* 568, Die nichtlandwirtschaftlichen Arbeitsstätten in den Reichsteilen und Verwaltungsbezirken 1939.

3. The 1935-figures were extrapolated to 1936 by applying the growth rate of turnover between the two years.[118]
4. Finally, the estimated figures for 1936 were augmented by five percent, because the turnover statistics neglect very small firms. This percentage was based on the assessment/ calculations of the German Statistical Office (StRA).[119] After some adaptations due to consistency checks[120] and after balancing, the resulting numbers were imputed into our final input-output table.

The description of the sources and estimation procedure is supplemented by some specific remarks:

Major sources for the structure of intermediate and primary inputs consist of handwritten work sheets (Schmierzettel) of the StRA.[121] These are detailed but only legible with difficulty. The work sheets allow only a rather crude delimitation or differentiation of industrial intermediate inputs. Therefore Stäglin's input-output-table concerning the Federal Republic of Germany in 1954 was applied to assign the industrial input of trade in appropriate detail. As cut-off point 1m RM was chosen. Depreciation for 1936 was mainly based on the 1933-investment ratio with some corrections.[122] As 1933 was a crisis year, depreciation for 1936 is a lower bound estimate. Dwelling was derived from expenditure for real estate (wholesale: Grundstückskosten) and rent for buildings (retail: Raumkosten). Retail bore relatively more cost for dwelling and probably owned more property and thus it seems plausible that retail bore relatively more depreciation than wholesale. Other services include, among others, advertising (Reklame, Werbung), repair (Reparatur), attorney's fees (Rechtsanwaltskosten), cleaning services (Reinigung), contribution to professional and political organizations. Concerning wholesale, a large amount for commission (Provision) was included.

### 4.3.2. Transport and communication

The input-output data were calculated separately for seven modes/categories of transportation and communication (see Table 4-6). Employment figures provided the key variable of the estimation procedure. For the Deutsche Reichspost (post office) and the Deutsche Reichsbahn (railway) we drew on the respective volumes of the StJR. For all other modes of transport, we relied on the workplace censuses of 1933/35 and 1939.[123] In order to get figures for 1936 a linear interpolation was applied between the benchmark years 1933 and 1939.

For gross output and input of the Deutsche Reichspost and Deutsche Reichsbahn, we used the same sources as for employment. In addition, we drew on statistical material from the StRA, which immediately after the war was compiled under the direction of the US-Military Government.[124] For the benchmark year of 1933 gross output and input of all other transport and detailed figures on specific input items for all branches of transportation were covered by

118 *StJR* 1937, pp. 373-375.
119 See the worksheets in BA 3102 2705 F114, 136.
120 A comparison of our results with the 1954 input-output table of the DIW (*Stäglin*, Input-Output-Rechnung) made us reduce gross output of wholesale by 1 billion RM.
121 BA R3102 2705 F 125 (wholesale) and F 139/149 (retail).
122 See BA R3102 2705 F 147, back side of the sheet.
123 *StR* 470.4; *StR* 568.
124 *OMGUS*, StH1946.

archival sources.[125] The compilation of the working sheets was based on direct evidence gathered by the StRA, on the evaluation of specialised contemporary literature or on balance sheets of joint stock companies. By this method, total expenditure or input was also split up into special items. In order to arrive at figures for the total of each branch, the StRA used the wage bill as key variable. For our purpose, we applied the input/cost structure of 1933 and allocated the estimated inputs to the different items for each branch of transportation accordingly. In addition, specific input data on physical quantities for certain products (e.g. coal) or consumers (e.g. railway and postal service) controlled by price quotations were used.[126]

In order to arrive at gross output for transport, except for postal services, railways (Reichsbahn) and air transportation in 1936 we applied the per capita increase of the output of postal services and railways (unweighted average of percentage increase) to the per capita output of these branches in 1933. For air transportation, however, its growth of passenger miles was used to bridge the gap between 1933 and 1936.[127] For gross input, we assumed that per capita input of all branches except for post and railways remained constant between 1933 and 1936 (Table 5-6).

*Specific sources for employment:*

1. Post office: Deutsche Reichspost, source: respective volumes of StJR; 1933, 1936 (end of year, 1936: average of 1935/36 and 1936/37).
2. Railway: Deutsche Reichsbahn, source: respective volumes of StJR; 1933, 1936 (yearly average).
   Sources and estimation procedure for all other transport in general: Workplace censuses of 1933/35 and 1939;[128] in order to get figures for 1936, a linear interpolation was applied between the benchmark years of 1933 and 1939.
3. Other rail services: Schienenbahnen, ausgenommen Reichsbahn (XXVIII.6 and 28.3.)
4. Sea and coastal navigation, sea ports: See-, Küstenschifffahrt, Küsten-, Kanal-, Hafenwesen (XXVIII.1,3 and 28.6).
5. Inland navigation: Binnenschifffahrt und Flößerei (XXVIII.2 and 28.7).
6. Air transportation: Luftverkehr (XXVIII.8 and 28.8).
7. Other transport on land and miscellaneous; automobile, garages, pump stations, porters etc: Anderer Landtranport und sonstige Transportgewerbe, Sonstige Landbeförderung, Aufbewahrung, Spedition, Bewachung usw., Kraftfahrgewerbe, Fuhrgewerbe und Trägerdienst, Spedition und Lagerei, Garagen u. sonst. Aufbewahrungsgewerbe, Hilfsgewerbe des Verkehrs, Verwaltungs- und Hilfsbetriebe, Verleih- und Bewachungsgewerbe (XXVIII.7 and XXVI.6; 28.4, 5, 9, 10, 11, 12 and 25.6.)

125 BA R3102 2705, 25 handwritten pages, F169-F194.

126 Various documents of the Federal Archive: BA R3102 6271, 6231, 5728, 3140 and *StJR* 1937 VIII on prices.

127 *OMGUS,* StH1946, p. VkE.

128 *StR* 470.4; *StR* 568 respective categories. The more comprehensive occupational census of 1933/35 (*StR* 470, 2, p. 29 f.) was not suitable because it does not match the classification the StRA used to calculate its input-output relations for 1933 (BA R3102 2705).

*Table 4-6*: Employment and output of German transportation and communication in 1936

| | | Census employment (persons) | | | |
|---|---|---|---|---|---|
| | | 1933(35) | 1936 | 1939 | |
| 1 | Imperial post office* | | 376777 | 468746 | |
| 2 | Imperial railway* | | 659943 | 838464 | |
| 3 | Other rail services | 117427 | 109911 | 102395 | |
| 4 | Sea and coastal navigation, sea ports | 57608 | 72675 | 87741 | |
| 5 | Inland navigation | 42651 | 51992 | 61333 | |
| 6 | Air transportation | 1938 | 3111 | 4283 | |
| 7 | Other transport on land and miscellaneous | 211031 | 306707 | 402383 | |
| | Total | 430655 | 1581116 | 1965345 | |
| | | **Gross production (m RM and RM)** | | | |
| | | 1933 | per capita | 1936 | per capita |
| 1 | Imperial post office* | 1636 | 4,662 | 1809 | 4,802 |
| 2 | Imperial railway* | 2921 | 4,922 | 3985 | 6,038 |
| 3 | Other rail services | 688 | 5,916 | 734 | 6,675 |
| 4 | Sea and coastal navigation, sea ports | 575 | 9,991 | 819 | 11,274 |
| 5 | Inland navigation | 320 | 7,552 | 443 | 8,521 |
| 6 | Air transportation | 35 | 18,107 | 69 | 22,213 |
| 7 | Other transport on land and miscellaneous | 1271 | 6,089 | 2107 | 6,871 |
| | Total | 7446 | | 9967 | |

*Notes*: *1936 observation, otherwise interpolation 1933-1939.

*Sources*: see text.

### 4.3.3. Banking and insurance

In order to estimate gross production of banking and insurance for 1936 we drew on the turnover statistics for Germany, 1935.[129] Owing to particularities of the tax returns[130] the turnover figure did not cover all bank activities. We increased the turnover figure by taking into account available data on gross domestic product of the German Statistical Office for 1936.[131] Above this, we added the payments of interest, dividends, etc. to foreign countries (see chapter 4.6). Thus we obtained 2,330 m RM as gross output of banking for 1936.

Gross production of insurance is defined by its service charge, which is the difference between premium received and claims paid by the insurance companies. According to the published data on premium received and claims paid for insured cases in 1936,[132] service charges made up 1,214.1 m RM. Adding up the two amounts we got 3,544.1 m RM of gross production of banking and insurance. The accompanying gross value added was estimated on the basis of the corresponding GDP ratio for banking and insurance of the DIW input-output table for Germany in 1954.[133] The ratio of 73.4%[134] was multiplied by gross production excluding

129 *StR* 511, I, p. 21.
130 *StR* 511, III, Category XXVII.
131 *WS* 1949/50, p. 96.
132 *Länderrat*, StH1949, pp. 537 f.
133 *Stäglin*, Input-Output-Rechnung, Table I.
134 Comparable ratios can also be found in the input-output table of the Ifo institute for 1961 (72.5%) and in the input-output table of the German Federal Statistical Office for 1965 (70%). See *G. Gehrig et al.*, In-

the payments of interest, dividends, etc. and resulted in 2,176.6 m RM for GDP of banking and insurance in Germany in 1936.

For the balance between gross production and gross value added, we came to 1,367.5 m RM for total intermediate inputs of banking and insurance. After deducting the imports (640 m RM including the payments of interest, dividends, etc. of 580 m RM) domestic intermediate inputs made up 727.5 m RM. This figure was split up into 40 suppliers of intermediate inputs. For 1933 and for 1939, substantial information of cost factors and administrative expenses of banking and insurance was obtained from detailed work sheets of the German Statistical Office[135] and the *Reichswirtschaftskammer.*[136] For 1936, additional background information was also available from published data.[137] All these data sources were not sufficient, however, to estimate the detailed cost structure of banking and insurance of Germany in 1936.

For that reason, we deferred to the intermediate input pattern of banking and insurance of input-output tables of Germany in 1953, 1954, 1960 and 1961.[138] We standardized the classification of the five input-output tables according to our input-output classification for 1936 and calculated the available input structures as percentages of domestic intermediate inputs. Drawing upon selective information from the archival records we estimated the intermediate input structure by referring to the average of the five input structures of banking and insurance. We then applied the estimated input structure to our domestic intermediate inputs in order to split up 727.5 m RM into the respective branches. Trade charges and transport costs were deducted and transferred to the corresponding rows 33 to 35. Finally, the compensation of employees in banking and insurance was determined by assigning an average yearly income of 3,500 RM to the 325 thousand persons employed.

### 4.3.4. Dwelling

Gross production of dwelling is defined by its rental income. The figure for 1936 was obtained by extrapolating crude estimates of the German Statistical Office for 1933.[139] Based on confidential information of the *Reichswirtschaftskammer* on expenditure for dwelling[140] we calculated a growth factor of 1.07 between 1933 and 1936. Multiplying the factor by the amount for 1933 (7,745 m RM) we obtained the gross production value of dwelling for Germany in 1936 (8,287 m RM). Applying a GDP ratio of 59.5%[141] resulted in the

put-Output-Studien, Vol. 1-10, Munich 1969, Table X and *StBA*, Input-Output-Tabellen 1965, Fachserie N, Volkswirtschaftliche Gesamtrechnungen, Reihe 2, Stuttgart 1972, p. 68.

135 BA R3102 2705, F 151-167.

136 BA R2501 6370, F 174, 176.

137 See *WS* 1938, pp. 784-786 and *StJR* 1938, pp. 400 f., 476 f.

138 See *W. Krelle*, Volkswirtschaftliche Gesamtrechnung einschließlich input-output-Analyse mit Zahlen für die Bundesrepublik Deutschland, Berlin 1959; *Stäglin*, Input-Output-Rechnung; *G. Zeitel,* Die Steuerlastverteilung in der Bundesrepublik Deutschland, Tübingen 1959; SAEG (Statistisches Amt der Europäischen Gemeinschaften), Input-Output-Tabellen für die Länder der Europäischen Gemeinschaft –Bundesrepublik Deutschland einschl. Berlin (West) 1960, Brüssel 1964; *Gehrig et al*., Input-Output-Studien.

139 BA R3102 2705, F 205.

140 BA R2501 6627, p. 17.

141 The ratio was taken from the DIW input-output table 1954. It is of the same order as the corresponding GDP ratios for dwelling in the input-output tables of Ifo 1961 (64%) and *SAEG* (62%): *Gehrig et al*., Input-Output-Studien and *SAEG,* Input-Output-Tabellen.

appropriate gross domestic product of 4,933.7 m RM and total domestic intermediate inputs of 3,353.3 m RM.

In two steps, we disaggregated domestic intermediate inputs according to delivering branches: firstly, we calculated expenditure on repair services for dwelling drawing on a special example of housing expenses used by the German Statistical Office in its internal input-output approaches for 1933.[142] Assuming the same cost structure for 1936, we assigned the different handicraft activities to the respective branches and split up the budget for repair services of 822 m RM (24.5% of domestic intermediate inputs). Secondly, the residual of 2,531.3 m RM was allocated according to an average input structure for dwelling derived from the corresponding input pattern in available input-output tables of Germany.[143] Trade charges and transport costs were deducted and transferred to the corresponding rows 33 to 35.

The working sheets of the German Statistical Office for 1933 also contained information on the compensation of employees in dwelling.[144] The wages and salaries estimated for three categories of employees of the dwelling sector were expressed as a percentage of rental income. Multiplying the aggregated ratio by the rental income of 8,287 m RM amounted to 133 m RM for compensation of these employees in 1936.

### 4.3.5. Other services

All remaining service activities, which are not dealt with separately, were brought together in the aggregated sector of *other services*. They include, among others, private education, private health and social work services, sanitation and similar services, recreational, cultural and sporting services, services of private, professional and business associations, professional services, and hotels and restaurants services.[145] Based on the official turnover statistics for 1935, we estimated gross production of these *other services* in 1936:[146] excluding hotels and restaurants a turnover of 3,614.2 m RM was reported and for hotels and restaurant services taken separately an amount of 4**,**352.1 m RM was given. We extrapolated the two figures by using both the GDP information for other services[147] and the growth rate of consumption of food and beverages[148] for hotels and restaurants. The respective values are 3,770 m RM and 4,583 m RM for 1936, amounting to a gross production of 8,353 m RM for *other services in total*.

Here as well, we drew on available input-output tables of Germany[149] to derive a GDP ratio of 57% for *other services in total.* We obtained separately 70% for *other services* excluding hotels and restaurants and 46% for hotels and restaurants services. The multiplication by the corresponding gross production values yielded 2,639 m RM for *other services* without hotels and restaurants and 2,120 m RM for hotels and restaurants. Both together add up to a gross

142 BA R3102 2705, F 201-204.
143 See *Krelle*, Volkswirtschaftliche Gesamtrechnung; *Stäglin*, Input-Output-Rechnung; *Zeitel*, Steuerlastverteilung; *SAEG,* Input-Output-Tabellen; *Gehrig et al*., Input-Output-Studien.
144 BA R3102 2705, F 201-202.
145 Nowadays, hotel and restaurant services are separated from other services and presented as a sector of its own.
146 *StR* 511, I: Categories XXIX- XXXIV.
147 *WS* 1949/50, p. 96.
148 BA R2501 6627, p. 17.
149 *Stäglin*, Input-Output-Rechnung; *SAEG,* Input-Output-Tabellen; *Gehrig et al*., Input-Output-Studien; *StBA* Input-Output-Tabellen.

domestic production of 4,759 m RM for *other services* in total. As balance between gross production and gross domestic product we obtained 3,594 m RM for total intermediate inputs of all *other services* and 1,131m RM for *other services without hotels and restaurants* and 2,463m RM for hotels and restaurants services separately.

Disaggregation of total intermediate inputs into 40 supplying branches and imports was carried out separately for both *other services* groups as well. Combining data on cost structure of hotels and restaurants in 1933 from internal work sheets of the German Statistical Office[150] with intermediate input pattern of hotels and restaurants in 1961 published by Ifo[151] we estimated the input structure for 1936. Applying the input ratios to the intermediate input figure of 2,463 m RM and making use of additional substantial information from two specific articles[152] from the German Statistical Office, we obtained the required input distribution for hotel and restaurant services. As for banking and insurance, we estimated the input structure of *other services* by drawing on German input-output tables for the years of 1953, 1954, 1960 and 1961. For certain individual deliveries, we relied on crude archival records of the StRA concerning advertising expenditure, costs of political and economic membership organisations, inputs of private health and social work services, cultural (theatre, cinema, movie production) and sporting services.[153] The same record supplied as well the share of the wage bill in total costs. After allocating all imports of 78 m RM to *other services*, we assigned the remaining domestic inputs of 1,053 m RM according to the assumed average cost structure. Trade charges and transportation costs were deducted and transferred to the corresponding rows 33 to 35.

### 4.3.6. Domestic services

Information on domestic workers was based on the occupational censuses of 1933/35[154] and 1939.[155] The number of 1,228 thousand people for 1936 is a linear interpolation between 1933/35 and the corrected figure for 1939. In 1933/35, nearly 97% of domestic workers were menial staff. More than 99% of them were female.[156]

For income, we drew on Hoffmann et al.:[157] they arrived at a yearly income of 1,027 RM per employee in 1936.[158] The figure is extrapolated from a benchmark estimate in 1907 based on a survey of household spending.[159] Besides cash payment, it took into account the money value for board and lodging as well. The amount of 611 Mark for a yearly income in 1907 was extrapolated by household accounts for other benchmark years and by indices of wages, per capita spending on nutrition and household spending on rents. An independent check of

150 BA R3102 2705, F 196.
151 *Gehrig et al*., Input-Output-Studien.
152 See Betriebsstruktur und Kostengestaltung im Gaststättengewerbe, in: *WS*, 1939, pp. 154-156 and Betriebsstruktur und Kostengestaltung im Beherbergungsgewerbe, in: *WS*, 1939, pp. 366-369.
153 BA R3102 2705 F 132-35, 195-234, 237-252.
154 *StR* 470, 2 W.-Abt. 6, häusliche Dienste.
155 *StR* 556, 1 W.-Abt. 7, häusliche Dienste, 1939 German Reich, including Austria and Sudetenland. These were subtracted according to *StR* 557, 6, 27, 28 Reichsgaue Wien, Alpen-Donau, Sudetenland.
156 *StR* 470, 2 p. 8.
157 *Hoffmann et al.*, Wachstum, p. 495.
158 In his estimation procedure of German value added in 1936 Grünig assumed a yearly income of 700 RM in "häusliche Dienste", *Grünig,* Volkswirtschaftliche Bilanzen, p. 7.
159 *Hoffmann et al*., Wachstum, pp. 480-483.

Hoffmann's 1907 benchmark was based on Pierenkemper's detailed account for the labour market of house maids at the end of the 19th century.[160]

*Table 4-7*: Domestic services (häusliche Dienste) in Germany, number of employees

| Reference Year | Territory | Employment |
|---|---|---|
| 1939 | Germany 1939-territorry | 1521718 |
| 1939 | Wien | 45795 |
| 1939 | Alpen-Donau | 80228 |
| 1939 | Sudetenland | 37229 |
| 1939 | Germany 1937-territory | 1358466 |
| 1933/35 | Germany 1937-territory | 1096932 |
| 1936 (Estimate) | Germany 1937- territory | 1227699 |

*Source*: see text.

Pierenkemper also quotes Engelsing, who arrived at 600 Mark for 1897 and 620 Mark for 1902.[161] All the figures refer to house maids. Other types of workers can be neglected: clerks, male servants and labourers comprised barely four percent of people working in domestic services.[162]

*Table 4-8*: Yearly income of house maids in Germany (Mark)

| | 1907 Hoffmann | 1900 Pierenkemper |
|---|---|---|
| Cash payment | 145 | 200 |
| Board | 350 | 365 |
| Lodging | 116 | 72 |
| Christmas Gratification | | 30 |
| Total | 611 | 667 |

*Source*: see text.

In conclusion, Hoffmann's level of income for the beginning of the 20th century fits independent evidence. Furthermore, the extrapolation of the pre-World War I level to 1936 seems plausible when checking it against the development of hourly wages for the same time-span based on publications by the German Statistical Office.[163] Thus instead of Grünig's estimate of 700 RM we took Hoffmann's 1027 RM of average yearly income for employees in domestic services. In total, the 1,228 thousand people in domestic services earned 1,261 m RM in 1936.

### 4.4. Government

Many data of government expenditure had to be derived from archival sources, because to a large extent budgetary figures were not published at all and significant parts of government spending, e.g. for military purposes, were administered through shadow budgets and were thus

160 *T. Pierenkemper*, Dienstbotenfrage und Dienstmädchenarbeitsmarkt am Ende des 19. Jahrhunderts, in: Archiv für Sozialgeschichte 28, 1988, pp. 193-197.
161 For additional quantitative evidence, *Ibid*.
162 *StR* 470, 2, p. 8.
163 See the table 18 in *D. Petzina et al.*, Sozialgeschichtliches Arbeitsbuch III, Materialien zur Statistik des Deutschen Reiches 1914-1945, Munich 1978, p. 98.

kept secret.[164] In addition to published statistics and above all in addition to detailed archival records from the German Statistical Office we consulted the works of Oshima[165] and Ritschl.[166] Both drew in their research on the archival records of the Ministries of Finance and Labour (Finanzministerium, Arbeitsministerium) and Ritschl also consulted the files of the central bank (Reichsbank). For our purpose here, we relied in particular on the work of Oshima, because he supplied details of military spending financed by the official budget, kept secret then, however. Ritschl's and Oshima's figures for the central government (Reich) are consistent with each other drawing both on the same unpublished files of the Ministry of Finance.

The figures for current spending of the government were generated separately for three sections of governmental activity, i.e. public administration together with other governmental services, the military, and social security, including unemployment insurance. The final results are shown in Table 4-9. The figures of the 40 branches are found in our input-output table aggregated into one column in quadrant I. We thus considered government as a production sector, which supplied its output to final demand (minus fees for certain governmental services) without direct financial compensation. This explains why under the heading of government consumption only one number appears in quadrant II (cell 38/42). Whereas all military expenses were counted as current spending, we accounted for the civilian investment of the government separately. This is shown in the last column of Table 4-9 and in the government column of the investment matrix (Table 4-19). It became an integral part of gross fixed capital formation in quadrant II of our input-output table.

*Table 4-9*: Government expenditure* of Germany in 1936, m RM

| | Government | Administration | Military | Social Security | Total | Investment |
|---|---|---|---|---|---|---|
| Input (40) | | | | | | |
| 1 | Agriculture | 281 | 84 | 24 | 389 | |
| 2 | Forestry, fishery | 5 | 4 | 1 | 10 | |
| 3 | Mining | 26 | 27 | 25 | 78 | |
| 4 | Fuel industries | 7 | 17 | 7 | 31 | |
| 5 | Basic iron and steel products | | 3 | | 3 | |
| 6 | Non-ferrous metals | | 2 | | 2 | |
| 7 | Foundries | | | | | |
| 8 | Fabricated iron and steel products | 100 | 556 | | 656 | 10 |
| 9 | Machinery | 173 | 502 | 10 | 684 | 199 |
| 10 | Constructional steel | 15 | 361 | | 376 | 179 |
| 11 | Vehicles and aerospace | 37 | 991 | | 1029 | 119 |

164 *Ritschl,* Deutschlands Krise, pp. 273-277.

165 *M. Oshima*, Statistische Materialien über die Reichsfinanzen im Dritten Reich 1933-1944 (1)-(3), in: Mitagakkai Akademic Yearbook of Keio-Universität Tokio, July/Oktober 1991, January 1992 (in Japanese with German comments); *Idem*, Von der Rüstungsfinanzierung zum Reichsbankgesetz 1939, in: JWG, 2006/1, pp. 177-217.

166 *Ritschl,* Deutschlands Krise. Most reported figures on government spending refer to the fiscal year (April to March); in order to make them consistent with government spending on social security, unemployment compensation etc., which refer to the calendar year, Ritschl converted them to the calendar year as well (*Ibid*., p. 287). We converted the fiscal to the calendar year by the following formula: calendar year 1936 = 1/4 fiscal year of 1935/36 + 3/4 fiscal year of 1936/37.

*Continuation table 4-9*: Government expenditure* of Germany in 1936, m RM

| | Government | Administration | Military | Social Security | Total | Investment |
|---|---|---|---|---|---|---|
| Input (40) | | | | | | |
| 12 | Electrical engineering | 53 | 195 | 18 | 267 | 199 |
| 13 | Precision engineering, optics | 25 | 63 | 11 | 99 | 60 |
| 14 | Metal products | 10 | 331 | 13 | 354 | 99 |
| 15 | Stone and quarrying | 9 | 11 | 2 | 21 | |
| 16 | Ceramics | 2 | 3 | 1 | 6 | |
| 17 | Glass | 3 | 3 | 1 | 7 | |
| 18 | Saw mills, timber processing | | | | | |
| 19 | Manufactured wood products | 47 | 53 | 9 | 109 | 129 |
| 20 | Chemical industry | 33 | 19 | 208 | 260 | |
| 21 | Chemical-technical industry | 0 | 242 | 10 | 252 | |
| 22 | Rubber and asbestos manufacture | 10 | 31 | 4 | 45 | |
| 23 | Manufacture of paper and paper products | 13 | 53 | 3 | 69 | |
| 24 | Printing and duplicating | 44 | 14 | 12 | 71 | |
| 25 | Leather industry | 7 | 13 | | 20 | |
| 26 | Textiles | 9 | 43 | 10 | 62 | |
| 27 | Clothing | 112 | 89 | 13 | 214 | |
| 28 | Edible oil and fats | | 5 | | 5 | |
| 29 | Spirits industry | | 10 | | 10 | |
| 30 | Food, beverages and tobacco | 185 | 156 | 33 | 375 | |
| 31 | Building and construction | 74 | 2400 | 39 | 2513 | 1506 |
| 32 | Electricity, gas and water | 100 | 18 | 18 | 136 | |
| 33 | Wholesale trade | 73 | 462 | | 535 | |
| 34 | Retail trade | 23 | 131 | | 154 | |
| 35 | Transport and communication | 121 | 470 | 22 | 613 | |
| 36 | Banking and insurance | 49 | | | 49 | |
| 37 | Dwelling | 46 | 447 | 15 | 508 | |
| 38 | Government | | 122 | | 122 | |
| 39 | Other services | 4 | 79 | 697 | 781 | |
| 40 | Domestic services | | | | | |
| **1-40** | **Domestic intermediate and final inputs** | **1698** | **8010** | **1204** | **10912** | **2500** |
| 41 | Imports | 14 | 75 | | 89 | 11 |
| **1-41** | **Total intermediate and final inputs** | **1712** | **8085** | **1204** | **11001** | **2511** |
| 42 | Compensation of employees | 5140 | 597 | 415 | 6152 | |
| 43 | Indirect taxes minus subsidies | | | | | |
| 44 | Consumption of fixed capital | 600 | | | 600 | |
| **42-45** | Gross value added (net production) | **5740** | **597** | **414,8** | **6752** | |
| **1-45** | **Gross production** | **7452** | **8682** | **1619** | **17753** | |
| | Subsidies | | 647 | | 647 | |

*Notes*: *producers' prices and after balancing.

*Source*: see text.

### 4.4.1. Public administration

Since social security and military spending are dealt with separately, the task here was to figure out government spending on administrative duties and the rest of government services.

*Compensation of employees (wage bill)*

For the wage bill of the government we used published sources supplemented by estimates of the payments for ordinary workers. The ratio of 1.51 (total wage bill to that of civil servants and white collar workers) for local communities was applied to the federal states. For two reasons the correction factor was not used for the central government: the Reich employed significantly less workers and the addition to the wage bill of the federal states was probably biased upwards anyway. Without soldiers and social security personnel, all governmental authorities spent 5,140 m RM on wages (5,737 m RM including professional soldiers; Table 4-10).[167]

*Material inputs*

For the amount and allocation of governmental spending on material inputs we could draw on the work which the German Statistical Office had pursued for their planned "matrix of economic interdependencies" (Volkswirtschaftliche Verflechtungstabelle 1933) thus nothing else than an input-output table for Germany in 1933. Unfortunately, the StRA never finished this task. Fortunately however, we found the underlying work sheets in the Federal Archive. Thus, we made use of two extensive and detailed oversized work sheets of the StRA concerning the level and structure of government expenditure in 1933.[168] Work sheet F 212 (Öffentliche Verwaltungswirtschaft an Industrie (Einzelaufteilung)) deals with deliveries of industrial sectors proper to 13 branches of current government activities (*Sachausgaben*). In this "industrial" work sheet, government spending on investment is excluded. In addition to the industrial sectors proper, the deliveries include care for poor people not covered by social security or unemployment compensation (Wirtschaftliche Fürsorge, Einrichtungen). These deliveries comprise large amounts spent on food or agricultural products.

*Table 4-10*: Wage bill of German government employees (including professional soldiers) 1936*, m RM

| | **Civil servants and white collar workers** | **Beamte und Angestellte** | **Total wage bill Lohnsumme insgesamt** |
|---|---|---|---|
| Local communities | Gemeinden (Gem.-verbände) | 1346 | 2031 |
| Hanseatic cities | Hansestädte | 117 | 177 |
| Federal states | Länder | 1325 | 2000 |
| Central government | Reich | 1530 | 1530 |
| Total | | | 5737 |

*Notes and comment*: * (1/4 fiscal year of 1935/36; 3/4 fiscal year of 1936/37). Ratio (wage bill workers) 1.51 derived from known relation for local communities.

*Source*: Länderrat, StH1949, pp. 549, 552.

167 *Länderrat,* StH1949, p. 549. Drafted soldiers, however, are not included.
168 BA R3102 2705 F 211, 212.

We assumed that government expenditure on current material inputs remained rather constant between 1933 and 1936. This is confirmed by the level of government expenditure the federal states and local authorities spent between these benchmark years.[169] Furthermore, we presumed that any increase of central government expenditure on current material inputs was due to an increased payment for rearmament, which is dealt with separately here. The *industrial* work sheet states 1.252 billion RM. In addition, 460 m RM are allocated to material inputs in order to cover expenses for agriculture (additional 79 m RM), building and construction for maintenance work (74 m RM), electricity, gas, water (100 m RM), trade (96 m RM) and transport (111 m RM). In total, we arrived at 1.712 billion RM for government spending on material inputs.

Work sheet F 211 comprises the aggregate figures of work sheet F 212, and in addition material inputs from the other (non-industrial) branches. In work sheet F 211, total expenditure is significantly higher than the budget for public administration proper, because a number of spending categories are included as well: e.g. expenditure for new buildings (Neubauten), thus investment; expenditure for social security, dealt with separately and expenditure beyond the regular budget, i.e. for work creation programs. These categories were not taken into account when we used the percentage distribution of the remaining items as representative of our purpose. The percentage distribution of 1933 was applied to allocate the material inputs for 1936 to the 40 branches.

We checked our estimate of material inputs spent by the public administration in 1936 independently by comparing it with Ritschl's detailed account.[170] Without military and social security spending, total government (central, federal and local) expenditure roughly made up between 17 and 18 billion RM. Deducting from this amount repayment of debt, transfers without social security and subsidies, the wage bill of civil personnel and governmental investment, one gets between 1.5 and 2 billion RM on current spending of all governments on material inputs for public administration.

### 4.4.2. Military spending

After the war, there was some discussion about the amount of military spending during the 1930s.[171] The discussion is now settled, and Table 4-11 presents figures of different scholars, which more or less reveal the same magnitude. There is thus consensus that military spending during the calendar year of 1936 reached around nine billion Reichsmark. A point of discussion seems to be to what extent armament expenditure was financed alongside the regular budget by Mefo-bills (Mefowechsel). The Metallurgische Forschungsgesellschaft (Mefo), a newly

169 *Ritschl,* Deutschlands Krise, Table A.10.

170 *Ibid*., Table A.12.

171 See e.g. the classical study by *Erbe* (nationalsozialistische Wirtschaftspolitik, pp. 38-40) for an early account. In addition, with special reference to the financing of military expenditure by Mefo-bills, see Oshima (Rüstungsfinanzierung, pp. 179-185). Immediately after the war, the Americans interrogated leading German government officials (the former Minister of Economics and President of the Reichsbank Schacht and the former Minister of Finance Schwerin von Krosigk) about the size of the military budget, see the discussion by *B. Klein* (Germany's Preparation for War: A Re-Examination, in: The American Economic Review 38, 1948, table V, pp. 68-72). Burton H. Klein was Asst. Director under J. Kenneth Galbraith who headed the commission (Overall Economic Effects Division) conducting "The United States Strategic Bombing Survey" immediately after the War. See also *W.A. Boelcke*, Die Kosten von Hitlers Krieg, Paderborn 1985, pp. 26-36, 51.

founded firm, accepted bills of exchange which were drawn by enterprises delivering armament goods. These bills circulated or were discounted at the commercial banks and finally at the German central bank, the "Reichsbank". According to Oshima[172], however, the Reichsbank did not want to accumulate too many bills in its portfolio and insisted on the government (Reich) buying bills back before they became due. The literature presents a confusing discussion on seemingly contradictory figures.[173] To avoid pitfalls in assessing the magnitude of financing military expenditure by Mefo-bills, one has to look at the increased circulation of this device: from newly issued bills the amount of those which had been bought back have to be subtracted. In Table 4-12 comparable figures on the Mefo-bills are put forward.

*Table 4-11*: Military spending of Germany 1935-1937, m RM

| | Fiscal Year | | | Calendar Year |
|---|---|---|---|---|
| | **1935** | **1936** | **1937** | **1936** |
| *Oshima,* Rüstungsfinanzierung, p. 182. | 6,174 | 10,381 | 11,196 | 9,329 |
| *Boelcke,* Kosten, pp. 28, 51. | 5,487 | 10,273 | 10,961 | 9,077 |
| Wehrwirtschafts- u. Rüstungsamt des OKW according to *Oshima*, Rüstungsfinanzierung, p.182. | 6,531 | 9,576 | 11,311 | 8,815 |
| *Genske*, Wilhelmstraßenprozess, Schwerin von Krosigk, former Minister of Finance according to *Oshima*, ibid. | 5,486 | 10,273 | 10,961 | 9,076 |
| *Klein,* Germany´s Preparation, p. 68. | 6,000 | 10,000 | 14,000 | 9,000 |

*Note*: Fiscal year april to march, calendar year of 1936: 1/4 1935 + 3/4 1936 fiscal years.

*Table 4-12*: Issue and circulation of Mefo-Bills in Germany 1935-1937, m RM

| | Fiscal Year | | | Calendar Year |
|---|---|---|---|---|
| | **1935** | **1936** | **1937** | **1936** |
| A. *Oshima*, Rüstungsfinanzierung, p. 182. New issue, gross | 3,695 | 7,251 | 6,606 | **6,362** |
| B. *Oshima,* ibid. Buying back (Einlösung von Mefowechseln) | 0,979 | 2,799 | 3,919 | **2,344** |
| A.-B. Net-increase of Mefo-bills | 2,716 | 4,452 | 2,687 | **4,018** |
| *Boelcke,*Kosten, p. 28. | 2,715 | 4,452 | 2,688 | **4,018** |
| *Ritschl,* Deutschlands Krise, pp. 279, 284 f. Tabelle A.2, A.7. Mefo-Armament Programm (Mefo-Rüstungsprogramm) | 2,715 | 4,646 | 2,494 | **4,163** |

Oshima, Boelcke and Ritschl[174] partly used the same source for their calculations, namely unpublished records of the German budget by the Ministry of Finance and the Reichsbank (Ritschl). Not surprisingly, figures of the authors match, aside from minor deviations. Differences at first glance are due to balancing gross and net issue of Mefo-bills at different stages of their respective aggregation procedure. By looking only at the net contribution of Mefo-

172 *Oshima*, Rüstungsfinanzierung, pp. 181-184.
173 Summarized *Ibid*., Rüstungsfinanzierung, pp. 181-185.
174 See quarterly data in *Ritschl,* Deutschlands Krise, Table A.7; sources: 284-285.

bills to military spending, their function in hiding armament expenditure is played down, and according to Oshima it leads to a misinterpretation of German rearmament in the mid-1930s.[175] If one looks separately at military spending the gross contribution of Mefo-bills has to be taken into account.

*Table 4-13*: Structure of military spending in Germany 1935-1937, m RM

| | Fiscal Year | | | **Calendar Year** |
|---|---|---|---|---|
| | 1935 | 1936 | 1937 | **1936** |
| A. Spending by parts of the armed forces (Wehrmachtsteile) | | | | |
| Ministry of War (Reichswehrminister) | 0,005 | 0,122 | 0,276 | **0,093** |
| Army (Heer) | 1,392 | 1,746 | 1,986 | **1,658** |
| Navy (Kriegsmarine) | 0,26 | 0,273 | 0,321 | **0,27** |
| Air Force (Luftwaffe) | 0,74 | 0,874 | 1,696 | **0,841** |
| plus Mefo-Bills (Mefo-Wechsel) | 3,695 | 7,251 | 6,606 | **6,362** |
| Sum | 6,091 | 10,266 | 10,866 | **9,222** |
| B. Empire´s spending for defense (Reichsverteidigungsausgaben) | | | | |
| Budget Spending (Haushaltsausgaben) | 0,065 | 0,113 | 0,311 | **0,101** |
| by job creation bills (Arbeitsbeschaffungswechsel) | 0,018 | 0,003 | | **0,007** |
| **A. + B. Total** | **6,174** | **10,381** | **11,196** | **9,329** |
| of which through the regular budget (durch den offiziellen Haushalt verausgabt) million RM | 2,461 | 3,128 | 4,59 | **2,961** |
| of which through the regular budget % | 40 | 30 | 41 | **32** |

*Note*: Fiscal year April to March, calendar year 1936: 1/4 1935 + 3/4 1936 fiscal years.

*Source*: *Oshima*, Rüstungsfinanzierung, p. 182, based on unpublished records of the Ministry of Finance.

For our calculation of military spending in the calendar year of 1936, we opted for Oshima's figures for total spending.[176] Both his 2006 and his 1991/92-publications are based on thorough archival research combined with sufficient detailed (disaggregated) documentation fit for our purpose. The bulk of military spending was financed beyond the regular budget by drawing on Mefo-bills (Table 4-13).[177]

The 9,329 m RM of military spending in the calendar year was allocated in several steps. We assigned 2.4 billion RM to buildings for military purposes. The figure is derived from Gehrig who had adopted Klein's figure.[178] Based on the detailed figures of the regular budget given by Oshima,[179] military spending (without buildings) for the Empire's defense (Reichsverteidigungsausgaben of the Vierjahresplan), for the army (Heer) and the navy (Marine) was assigned to the respective categories of the input-output table. For the army (including a small amount for defense) 2,220 m RM were attributed to material inputs, 490 m RM to

175 *Oshima*, Rüstungsfinanzierung, pp. 180-185.
176 *Oshima*, Statistische Materialien and *Ibid*., Rüstungsfinanzierung.
177 *Ibid.,* p. 182; *Boelcke*, Kosten, p. 28; *Ritschl,* Deutschlands Krise, pp. 279, 284-285, Table A.2, A.7.
178 *G. Gehrig*, Eine Zeitreihe für den Sachkapitalbestand (1925 bis 1938 und 1950 bis 1957), in: IFO-Studien 7, 1961, pp. 46 f.; *Klein*, Germany's Preparation, p. 66.
179 *Oshima*, Statistische Materialien, Tables 10, 12, 13, 14.

wages and 47 m RM to subsidies. As to the navy, we found figures of 866 m RM for material inputs and 32 m RM for wages. Concerning the air force, Oshima does not provide disaggregated numbers of the regular budget which would allow any specific allocation.[180] Therefore we relied on Budraß' figures[181] and assigned 1,163 m RM of sales of the aircraft industry (vehicles and aerospace) to the air force.[182] Labour income of 76 m RM was taken from a source of the Federal Archive.[183] In some cases, the industrial census of 1936 recorded sales to the army. For some industrial branches not yet covered, we thus obtained the following amounts (m of RM): fabricated iron and steel products 60, metal products 331, chemical-technical industry (ammunition) 243 and, in addition, electrical engineering 148.[184] Altogether, we covered 8,075 m RM of an estimated total military spending of 9,329 m RM, with a gap of 1,255 m RM remaining. In order to close this gap we drew on the detailed account of military spending in the Federal Republic of Germany in 1965.[185] Only those categories of our input-output table were used which had not been matched in the allocation procedure yet and which made up at least one million RM. The figures obtained thus far had to be refined and processed in some further steps, however. They had to be corrected for subsidies (300 m RM to constructional steel, i.e. shipbuilding, 300 m RM to vehicles and aerospace, i.e. aircraft industry, 47 m RM of the Vierjahresplan) and they had to be balanced and converted to producers' prices. The final results are shown in Table 4-9 under the heading of military.

### 4.4.3. Social security and unemployment insurance

In 1936, social security comprised the following branches: compulsory health insurance (Reichsgesetzliche Krankenversicherung)[186], accident insurance (Unfallversicherung) and disablement insurance (Invaliditätsversicherung) which included old-age insurance (Altersrentenversicherung) for ordinary workers. The *Angestelltenversicherung* for white collar workers and the *Knappschaftliche Pensionsversicherung* mainly for miners was an integral part of the German social security system. Finally, the risk of unemployment was covered for

180 See *Ibid.,* Table 10.

181 *L. Budraß*, Flugzeugindustrie und Luftrüstung in Deutschland 1918-1945, Düsseldorf 1998, p. 365.

182 The figure certainly includes subsidies to the aircraft industry. We took this into account when finally finishing the input-output table. E.g. Budraß' figure is significantly higher than the output of the aircraft industry recorded in the production census of 1936 which amounted to 888 m RM (BA R3102 3540). The Reichsluftfahrtministerium (Ministry of Aviation) supplied specific equipment for airplanes without charging anything for the delivery. According to a long report on the aircraft industry (BA R3102 3028 F6) the production value in 1936, including these supplies, was very well significantly above one billion RM. This clearly supports Budraß' figures.

183 BA R3102 3483, Besoldungsaufwand der planmäßigen Beamten: Wehrmacht 1932-1939.

184 BA R3102 3544; BA R3102 4152; BA R3102 3270; *Klein*, Germany's Preparation, *Gehrig*, Zeitreihe. Concerning a special branch of machinery (Apparate Kesselbau) the production census recorded 252.78 m RM for munition (BA R3102 3541). See also *J. Scherner*, Armament in depth' or 'armament in breadth'? German investment pattern and rearmament during the Nazi period, in: Economic History Review 66, 2013, pp. 497-517 and *Idem*, Nazi Germany's Preparation for War: Evidence from Revised Industrial Investment Series, in: European Review of Economic History 14, 2010, p. 460, Table A2 for data covering additional years.

185 1965 is considered as representative of the years dealt with, *J. Komarnicki/K.-H. Neuhaus*, Der Staatssektor in der Input-Output-Rechnung, Berlin 1972, pp. 54, 58, 174 f.

186 Including Ersatzkassen (health insurance for particular groups such as white collar workers (Angestellte)).

by the unemployment insurance (Arbeitslosenversicherung). Except for civil servants, almost all (dependent) employees fell under this Bismarckian social security system.

In the calendar year of 1936, 3,750.2 m RM were spent on social security (here and in the following paragraphs without unemployment insurance AV).[187] Administering social security (Verwaltungskosten) made up 273.4 m RM, the rest of 3,476.8 m RM is attributed to the service proper (Leistungsausgaben).[188]

In order to match social security spending with the SNA classification and the input-output table certain items were deducted from total spending:[189] social benefits or services were either provided in kind (e.g. medical or dental treatment, hospital care) or in cash transferred to beneficiaries or their dependents. Cash payments were treated as redistributive transactions. As transfers to households they were not recorded in the input-output table.[190] Thus cash payment and old age pension were deducted from social security spending in 1936. Social benefits in kind, however, were counted as intermediate input. Administrative costs as well had to be adjusted for our purpose: the pensions for retired personnel were counted as income transfer, hence they did not show up in the production account of social security.[191] The salaries of administrative personnel entered the production account as value added, whereas current cost of running social security were counted as intermediate input.

The German Statistical Office (StRA) allocated the spending of different branches of social security in 1933. Based on this work sheet[192] the 3,476.8 m RM were split up into four groups (Table 4-14): 18% consisted of professional care by physicians, dentists, nurses etc. and were assigned to *other services* of the input-output table. Eight per cent was spent on material cost. The bulk, 207.9 m RM, was medical care and came from the pharmaceutical industry, thus chemicals. The remaining 68.6 m RM of *other material cost* were allocated together with the same group within hospital expenditure. Comprising 64%, cash payment was the most important item of total spending. It was, however, not included in the input-output table. The 321.1 m RM for hospital care were allocated according to detailed information of the StRA on the cost structure of hospitals.[193] In addition to the StRA the detailed account by Komarnicki/Neuhaus for the Federal Republic of Germany in 1954 was applied to split up the item for boarding (Beköstigung) and above all the remaining spending on *other material cost* (91.1 m RM).[194]

187 *StJR* 1938, p. 475; identical figures in *Ritschl,* Deutschlands Krise, table A12 and *WS* 1938, p. 503.

188 In *StJR* (1938, p. 475) only 3,362.2 m RM are explicitly mentioned as spending on services (Leistungsausgaben) and 273.4 m RM on administration (Verwaltungskosten), the remaining difference with total spending, 114.6 m RM, was allocated towards services.

189 *EC,* SNA 1993, Annex IV.

190 Within the system of national accounts they „are mainly recorded in the secondary distribution of income account as transfers", thus not here. Quotation: *Ibid.*, p. 574.

191 Together money transfers made up 2,267.2 m RM.

192 BA R3102 2705 F 219.

193 BA R3102 2705 F 239.

194 *Komarnicki/Neuhaus*, Staatssektor, p. 292, öffentliches Gesundheitswesen. Only those categories of our input-output table were used which had not yet been matched in the allocation procedure and made up at least one million RM.

*Table 4-14*: Spending on social security in Germany in 1936

| Social benefits 1936 | | | | | |
|---|---|---|---|---|---|
| categories | total | professional care | material cost | cash payment | hospital care |
| % | | 18.4 | 8.0 | 64.4 | 9.2 |
| m RM | 3476.8 | 638.7 | 276.5 | 240.6 | 321.1 |

*Note*: Without administrative cost and unemployment compensation.

*Source*: see text.

The cost for administering social security was allocated according to the work sheet of the StRA.[195] The cost structure of accident insurance (Unfallversicherung) in 1933 was considered representative of all administration of social security including unemployment insurance (AV) in 1936. Wages comprised 71.5% and pension payments for retired staff (as redistributive transactions not recorded in the input-output table) amounted to 9.8%. The rest of 18.7% was made up by material inputs (Sachausgaben), which was allocated according to the percentage distribution of the work sheet.

In the calendar year of 1936, 1,505.2 m RM were spent on unemployment benefits (Arbeitslosenversicherung, Ausgaben insgesamt).[196] To a large extent, however, funds of the unemployment insurance were used for other purposes of government spending, e.g. financing the building of the notorious motorways (Autobahnen). Deducting the 568.3 m RM which were labeled as "Delivered to the Empire" and "parts of social security" (Ablieferung an das Reich und die Träger der Invalidenversicherung und die Reichsknappschaft) in the statistical yearbook of 1937,[197] there remained 936.9 m RM for the duties proper of the AV.[198] The bulk of spending of course consisted of cash payments for beneficiaries of the AV, which were left out of the compilation of our input-output table as redistributive transactions.[199]

In the statistical yearbook of 1938, the spending of the AV was classified in a somewhat different way: the amount spent under the label "Operation of the tasks of the central government institution" (Durchführung der Aufgaben der Reichsanstalt) compares with the former category in the StJR of 1937 and includes operational and administrative cost.[200] In 1936, 129 m RM were spent on operational tasks and entered our production account of the AV as such. The numerous footnotes accompanying the table on the results of the AV were checked for items which had to be taken into account for our input-output table. Specifically, all the items listed under footnote 12 add exactly up to the 555.7 m RM. These are headed under "General budget purposes" (Allgemeine Haushaltsausgaben) in the table of the StJR.[201] Most important are the 450 m RM spent on investment in transport infrastructure (including "Autobahnen"). Beside money transfers, the rest was spent on collecting fees (Beitragseinzug)

195 R3102 2705 F 220.
196 *StJR* 1937, pp. 452 f.
197 *StJR* 1937, p. 453. Together with other projects of transport infrastructure, it made up 430 m RM in 1936, see footnote 13 in *StJR* 1938, p. 475.
198 The same as *Ritschl,* Deutschlands Krise, table A12 and *WS* 1938, p. 503.
199 Together with pensions for retired personnel money transfers made up 669.3 m RM.
200 *StJR* 1937, p. 453; *StJR* 1938, p. 475.
201 *StJR* 1938, p. 475.

(6.5 m RM) and on women's work projects (1.7 m RM) of the "Reichsarbeitsdienst". Both and another 11.1 m RM extracted from footnotes 10 and 11 were assigned to "other services" of our input-output table. The 0.4 m RM spent on placement of migrating workers (Wanderarbeitervermittlung) were added to the cost of administrating unemployment insurance. The administration cost of AV finally were allocated in the same manner as for social security (Table 4-15).

*Table 4-15*: Social security in Germany 1936, m RM

| Input | | ohne Arbeitslosenversicherung Social Security without Unemployment Insurance | | Arbeitslosenversicherung Unemployment Insurance | Sozialversicherung Social Security |
|---|---|---|---|---|---|
| | | Verwaltung Administration ohne Ruhegehälter | Leistungen Services ohne Transfers | Verwaltung Administration ohne Ruhegehälter | Insgesamt Total |
| 1 | Agriculture | | 23.6 | | **23.6** |
| 2 | Forestry, fishery | | 1.1 | | **1.1** |
| 3 | Mining | 3.8 | 19.3 | 1.8 | **24.9** |
| 4 | Fuel industries | | 6.8 | | **6.8** |
| 5 | Basic iron and steel products | | | | |
| 6 | Non-ferrous metals | | | | |
| 7 | Foundries | | | | |
| 8 | Fabricated iron and steel products | | | | |
| 9 | Machinery | 3.5 | 4.7 | 1.7 | **9.9** |
| 10 | Constructional steel | | | | |
| 11 | Vehicles and aerospace | | | | |
| 12 | Electrical engineering | | 18.4 | | **18.4** |
| 13 | Precision engineering, optics | | 10.7 | | **10.7** |
| 14 | Metal products | 3.4 | 8.3 | 1.6 | **13.3** |
| 15 | Stone and quarrying | | 1.5 | | **1.5** |
| 16 | Ceramics | | 1.1 | | **1.1** |
| 17 | Glass | | 1.1 | | **1.1** |
| 18 | Saw mills, timber processing | | | | |
| 19 | Manufactured wood products | 1.7 | 6.4 | 0.8 | **8.9** |
| 20 | Chemical industry | | 207.9 | | **207.9** |
| 21 | Chemical-technical industry | | 9.6 | | **9.6** |
| 22 | Rubber and asbestos manufacture | | 3.9 | | **3.9** |
| 23 | Paper, cellulose and based manufacture | 1.7 | | 0.8 | **2.5** |
| 24 | Printing and duplicating | 2.7 | 8.3 | 1.3 | **12.2** |
| 25 | Leather industry | | | | |
| 26 | Textiles | | 9.6 | | **9.6** |
| 27 | Clothing | | 12.8 | | **12.8** |
| 28 | Edible oil and fats | | | | |
| 29 | Spirits industry | | | | |
| 30 | Food, beverages and tobacco | | 33.1 | | **33.1** |
| 31 | Building and construction | | 39.2 | | **39.2** |
| 32 | Electricity, gas and water | 3.8 | 12.8 | 1.8 | **18.5** |

*Continuation table 4-15*: Social security in Germany 1936, m RM

| | | ohne Arbeitslosenversicherung Social Security without Unemployment Insurance | | Arbeitslosenversicherung Unemployment Insurance | Sozialver-sicherung Social Security |
|---|---|---|---|---|---|
| Input | | Verwaltung Administration ohne Ruhegehälter | Leistungen Services ohne Transfers | Verwaltung Administration ohne Ruhegehälter | Insgesamt Total |
| 33 | Wholesale trade | | | | |
| 34 | Retail trade | | | | |
| 35 | Transport and communication | 14.6 | | 7.0 | **21.6** |
| 36 | Banking & Insurance | | | | |
| 37 | Dwelling | 3.9 | 9.6 | 1.9 | **15.4** |
| 38 | Government | | | | |
| 39 | Other services | 13.9 | 658.0 | 24.9 | **696.8** |
| 1-39 | Domestic intermediate inputs | 53.0 | 1107.8 | 43.5 | **1204.3** |
| 40 | Imports | | | | |
| 1-40 | Total intermediate inputs | 53.0 | 1107.8 | 43.5 | **1204.3** |
| 41 | Labour income/Gross value added | 193.8 | 128.4 | 92.5 | **414.8** |
| 1-41 | Gross production | 246.8 | 1236.2 | 136.0 | **1619.1** |

*Source*: see text.

### 4.5. Final demand

Final demand (or final use) is shown in quadrant II of the input-output table. As indicator of the expenditure side of national accounts it is used for analysing and forecasting economic development. Final demand consists of private consumption, government consumption, gross fixed capital formation, changes in inventories, and exports. All categories were dealt with for the input-output table for Germany in 1936.

#### 4.5.1. Private consumption

Private consumption covers final consumption expenditure of households and private non-profit institutions serving households. Final consumption expenditure consists of amounts incurred by resident institutional units on goods or services that are used for the direct satisfaction of individual needs or the collective needs of members of the community. It also includes the rental value of owner-occupied dwelling and own consumption in agriculture.[202] Final consumption expenditure may take place in the domestic territory or abroad.[203] Often, total final consumption expenditure by households is disaggregated according to the Classification of Individual Consumption by Purpose (COICOP)[204]. But a cross classification of private consumption expenditure by products and purposes is exceptional.[205] We implemented this procedure, however, in order to comply the corresponding category of final de-

202 See *WS* 1950, pp. 146-149.
203 Cited from *EC,* ESA 1993, paragraph 375.
204 See *EC,* SNA 1993, p. 598.
205 See *Eurostat*, Eurostat Manual of Supply, Use and Input-Output Tables, Eurostat, Methodologies and Working Papers, Luxembourg 2008, p. 125.

mand in the input-output table for Germany in 1936 with our separately estimated private consumption matrix.

*Private consumption matrix of Germany in 1936*

Table 4-16 presents the matrix of private consumption with values at current purchasers' prices. The producers of consumer goods and services are listed in the rows and in the columns 1 to 11 there are the expenditure groups or purposes of private consumption. The description of purposes is compatible with COICOP. The total in column 12 of the matrix gives the composition of total private consumption in 1936 (53,200 m RM) at purchasers' prices according to sectors producing consumer goods and services. The branch of food, beverages and tobacco turns out as main supplier (12,850 m RM) of private households followed by agriculture (8,200 m RM), dwelling (6,535 m RM) and other services (2,891 m RM). The last row of the private consumption matrix covering imports as well reveals that in the ranking of different purposes the branch of food, beverages and tobacco is also on the top (23,940 m RM). The next important purposes were dwelling (7,288 m RM) and clothing (7,129 m RM). The individual cells in the matrix show final private consumption expenditure according to products and consumption purposes. They offer a statistical picture of Germany in 1936, disaggregated to 40 producers of goods and services.

*Sources and estimation procedures*

In the case of private consumption, we pursued a top-down procedure in contrast to our usual bottom-up approach. We thus started from a given total amount on private consumption and disaggregated this amount step by step during our compilation.

In order to determine the level of private consumption as aggregate on the expenditure side of national accounts of Germany in 1936 we considered four different figures produced by German statistical offices. In internal documents of the German Statistical Office we found two different amounts of total private consumption expenditure: 51,700 m RM[206] and 55,000 m RM[207]. In connection with implementing the Marshall Plan after the Second World War, the German Statistical Office was obliged to make first calculations on national accounts for 1948/49.[208] Data for 1936 were used as a benchmark and as the starting point for the calculation and taken for comparison. They contain two different figures on total private consumption: 53,200 m RM[209] and 52,360 m RM[210].We finally decided to use the amount of 53,200m RM for total private consumption in our input-output table for Germany in 1936. In this we follow Otto Schörry**,** a leading member of staff both in the German Statistical Office and in the Federal Statistical Office after the war. He dealt with the case and was the author of the relevant 1949/50-article in Wirtschaft und Statistik.

In order to disaggregate the 53,200 m RM of final private consumption expenditure according to 11 purposes we checked existing information on average percentage distribution in order to determine our own expenditure structure for private households in 1936. The approach

206 BA R3102 2700 (Statistical appendix prepared for the minister of economics, 28.03. and 19.04.1938).
207 BA R3102 4107 (Sozialprodukt 1936, 1947).
208 See the discussion by *Stahmer* (Organisatorischer Neuanfang) and the 1949/50-article by *Schörry* (Volkseinkommen).
209 *WS* 1949/50, p. 96.
210 *WS* 1950, p. 148.

*Table 4-16*: Private consumption matrix of Germany in 1936 at purchasers' prices in m RM

| | Purpose of consumption | Food, beverages and tobacco | Clothing | Furniture, household goods | Dwelling | Heating, lighting | Toiletries, health care | Transportation | Education, entertainment | Domestic services | Other services | of which banking, insurance | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Producer of consumer goods and services | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | Agriculture | 8200.0 | | | | | | | | | | | **8200.0** |
| 2 | Forestry, fishery | 370.0 | | | | 92.0 | | | | | | | **462.0** |
| 3 | Mining | | | | | 870.0 | | | | | | | **870.0** |
| 4 | Fuel industries | | | | | | | 80.0 | | | | | **80.0** |
| 5 | Basic iron and steel products | | | | | | | | | | | | |
| 6 | Non-ferrous metals | | | | | | | | | | | | |
| 7 | Foundries | | | | | | | | | | | | |
| 8 | Fabricated iron and steel products | | | 139.0 | | | | | | | | | **139.0** |
| 9 | Machinery | | | 80.0 | | | | | | | | | **80.0** |
| 10 | Constructional steel | | | | | | | 30.0 | | | | | **30.0** |
| 11 | Vehicles and aerospace | | | | | | | 1000.0 | | | | | **1000.0** |
| 12 | Electrical engineering | | | 70.0 | 70.0 | | | | 100.0 | | | | **240.0** |
| 13 | Precision engineering, optics | | | | | | 70.0 | | | | | | **70.0** |
| 14 | Metal products | | | 550.0 | | | | | | | | | **550.0** |
| 15 | Stone and quarrying | | | | 50.0 | | | | | | | | **50.0** |
| 16 | Ceramics | | | 150.0 | | | | | | | | | **150.0** |
| 17 | Glass | | | 100.0 | | | | | | | | | **100.0** |
| 18 | Saw mills, timber processing | | | | | 100.0 | | | | | | | **100.0** |
| 19 | Manufactured wood products | | | 1270.0 | | | | | 140.0 | | | | **1410.0** |
| 20 | Chemical industry | | | | | | 420.0 | | | | | | **420.0** |
| 21 | Chemical-technical industry | | | | | | 660.0 | | | | | | **660.0** |
| 22 | Rubber and asbestos manufacture | | | 170.0 | | | | | | | | | **170.0** |
| 23 | Manufacture of paper a. paper products | | | | | | | | 60.0 | | | | **60.0** |
| 24 | Printing and duplicating | | | | | | | | 1410.0 | | | | **1410.0** |
| 25 | Leather industry | | 1470.0 | | | | | | | | | | **1470.0** |
| 26 | Textiles | | 3003.0 | 450.0 | | | | | | | | | **3453.0** |
| 27 | Clothing | | 2600.0 | | | | | | | | | | **2600.0** |
| 28 | Edible oil and fats | 941.0 | | | | | | | | | | | **941.0** |
| 29 | Spirits industry | 250.0 | | | | | | | | | | | **250.0** |
| 30 | Food, beverages and tobacco | 12850.0 | | | | | | | | | | | **12850.0** |
| 31 | Building and construction | | | | 207.0 | | | | | | | | **207.0** |
| 32 | Electricity, gas and water | | | | | 800.0 | | | | | | | **800.0** |
| 33 | Wholesale trade | | | | | | | | | | | | |
| 34 | Retail trade | | | | | | | | 462.0 | | 375.2 | | **837.2** |
| 35 | Transport and communication | | | | | | | 912.0 | 428.0 | | | | **1340.0** |
| 36 | Banking and insurance | | | | | | | | | | 573.0 | 573.0 | **573.0** |
| 37 | Dwelling | | | | 6534.8 | | | | | | | | **6534.8** |
| 38 | Government | | | | | | | | | | 154.8 | | **154.8** |
| 39 | Other services | 629.0 | | | 426.2 | | 1616.0 | | 220.0 | | | | **2891.2** |
| 40 | Domestic services | | | | | | | | | 1261.0 | | | **1261.0** |
| 1-40 | Domestic goods and services | **23240.0** | **7073.0** | **2979.0** | **7288.0** | **1862.0** | **2766.0** | **2022.0** | **2820.0** | **1261.0** | **1103.0** | **573.0** | **52414.0** |
| 41 | Imports | 700.0 | 56.0 | | | | | | | | 30.0 | | **786.0** |
| 1-41 | Total | **23940.0** | **7129.0** | **2979.0** | **7288.0** | **1862.0** | **2766.0** | **2022.0** | **2820.0** | **1261.0** | **1133.0** | **573.0** | **53200.0** |

*Source*: see text.

can be derived from Table 4-17 where all available data are collected. The first two data sets published by the German Statistical Office in 1949/50 and in 1950 cover all expenditure groups. The percentage distribution for the individual purposes differs because of the shifting border lines of Germany. The first percentage distribution relates to the frontier of the original German Reich, whereas the second is limited to the demarcation of the Federal Republic of Germany.

The percentage distribution of Hoffmann et al. in the third row of Table 4-17 gives only an average of the years 1935/38 and the percentages of Grünig do not refer to all individual purposes. The results of a sample survey carried out by the German Statistical Office on the expenditure of 350 working-class households in 1937[211] represent another source. Unfortunately, due to different definitions the expenditure percentage on other services is not applicable. We determined our assumed percentages on private consumption expenditure by comparing the percentage distribution of the various statistical sources whereby taking into account their substantial background. This distribution is shown in the last row of the upper part of Table 4-17.

In the lower part of Table 4-17, we used our percentage distribution to calculate final private consumption expenditure by purpose in millions of Reichsmark. Then we divided total consumption expenditure into imported and domestic consumer goods and services.

Assuming that mainly imports of food, beverages and tobacco and only some foreign textiles and services were used by private households, the required figures were estimated on the basis of available foreign trade statistics in 1936.[212] Then the expenditure on domestic consumer goods and services could be derived by subtraction.

In the next step of compiling the private consumption matrix for Germany in 1936 we had to split up final private consumption expenditure by purpose into a matrix format. For this we needed two sets of information: qualified information on the goods and services belonging to the 11 consumption purposes and quantitative information on the amount of the consumer goods and services in question. The qualified information could be collected from COICOP, which offers an overview of goods and services in the different expenditure groups. The main quantitative information was obtained from a survey by the StRA on economic accounts of 350 blue-collar worker households in 1937.[213] The disaggregation of their household expenses by purpose and by individual consumer goods and services allowed an allocation to the supplying branches.

For backing up our estimates we referred to a matrix of domestic consumer expenditure of private households in Germany in the year 2000 compiled by the Federal Statistical Office.[214] This procedure assures a balanced pattern of household expenditure among different groups of household income: our main quantitative information was based on the structure of consumption expenditure of 350 blue-collar worker households in 1937. For white-collar workers, we had no comparable data on household expenditure. In order to adjust this blue-collar structure to the higher income levels of white-collar workers we in addition drew on a matrix of domestic consumer expenditure by all private households in Germany in 2000.

211 *StJR* 1941/42, pp. 448-449.
212 See our chapter 4.6 on foreign trade.
213 *WS* 1939: pp.118-126, 323-329.
214 *StBA,* Inlandsprodukt, Table 5-3.

*Table 4-17*: Final private consumption expenditure of Germany in 1936

| | | according to purposes in percent | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data sources | Reference year, territory | Food, beverages and tobacco | Clothing | Furniture, household goods | Dwelling | Heating, lighting | Toiletries, health care | Transsportation | Education, entertainment | Domestic services | Other services | of which banking, insurance | Total |
| *WS*, 1949/50, p. 96. | 1936 (German Empire) | 42.5 | 9.4 | 13.3 | 13.1 | 2.1 | 3.8 | 3.8 | 0.9 | 1.9 | 9.2 | 3.0 | 100.0 |
| *WS*, 1950, p. 148. | 1936 (German Empire)# | 45.5 | 13.4 | 5.6 | 13.8 | 3.5 | 6.2 | 3.8 | 5.3 | 2.2 | 0.7 | 0.4 | 100.0 |
| *Hoffmann et al.*, Wachstum, Table 58. | 1935/38 (German Empire) | 49.7 | 12.0 | 8.1* | 15.4 | * | 5.1 | 3.7 | 3.6 | 2.4 | | | 100.0 |
| *Grünig*,Volkswirtschaftliche Bilanzen, p. 11. | 1936 (German Empire) | 43.3 | 14.0 | 19.6* | 9.1 | * | * | ° | 14.0° | ° | ° | | 100.0 |
| *StJR*, 1941/42, pp. 448 f. | 1937 (German Empire)## | 46.7 | 9.3 | 4.3 | 12.1 | 4.4 | 1.2 | 1.2 | 3.4 | 1.7 | 13.7### | 2.1 | 100.0 |
| *Fremdling/Stäglin* | 1936 (German Empire) | 45.0 | 13.4 | 5.6 | 13.7 | 3.5 | 5.2 | 3.8 | 5.3 | 2.4 | 2.1 | 1.1 | 100.0 |
| | | according to purposes in m RM | | | | | | | | | | | |
| Total consumer goods and services | | 23940 | 7129 | 2979 | 7288 | 1862 | 2766 | 2022 | 2820 | 1261 | 1133 | 585 | 53200 |
| Imported goods and services | | 700 | 56 | | | | | | | | 30 | | 786 |
| Domestic goods and services | | 23240 | 7073 | 2979 | 7288 | 1862 | 2766 | 2022 | 2820 | 1261 | 1103 | 585 | 52414 |

*Notes*: # According to the demarcation of the Federal Republic of Germany, ## Expenditures of working-class households, ### Including donations, saving, compulsary and voluntary insurance, * included in marked figure, ° included in marked figure.

The matrix consists of 95 goods and services supplied to private households and of 12 consumption purposes. But because of the long time interval we could only use the 2000-matrix in our estimates as a proxy. Firstly, we calculated a percentage distribution of the 95 goods and services in order to get a preliminary distribution of the total amount of 52,414 m RM according to 40 producers of consumer goods and services (see the last column in Table 4-16). Then we estimated the potential cells in our private consumption matrix approximately by combining the information from COICOP with corresponding selected items of the matrix on domestic consumer expenditure. A column-wise addition of the estimated figures in the first matrix approach resulted in some corrections of the preliminary consumption distribution in the last column of Table 4-16.

When balancing the whole input-output table, again some figures on producers of consumer goods and services in the consumption matrix and subsequently also selected cells inside the matrix had to be revised in an iterative process.

*From private consumption matrix to input-output table*

In order to integrate the data of the last column of the private consumption matrix as final demand category into quadrant II of the input-output table the values concerned had to be transformed from purchasers' prices to producers' prices. This was necessary for those consumer goods, where purchasers' prices included wholesale charges, retail trade charges and transport costs.

Table 4-18 clears up the procedure that we used to reduce charges and transport costs from the individual private consumption expenditure. The first column repeats the figures at purchasers' prices from the last column of the private consumption matrix. The next two columns show wholesale charges and transport costs, which are extracted for private consumption from the matrices implemented for the whole economy (see Tables 5-2, 5-3). In column 4 of Table 4-18, values for retail trade charges are added. We estimated them for the individual consumer goods by referring to selected retail trade margins in 1929 and 1935, which are available in archival records[215] or published by the German Statistical Office.[216] Subtracting the charges and transport costs from the figures in the first column we obtained the last column with private consumption expenditure at producers' prices. For balancing the individual price-induced reduction we transferred the sum of wholesale charges (1,201.9 m RM), retail trade charges (2,648.7 m RM) and transport costs (1,438.8 m RM) to the sectors of wholesale trade, retail trade, and transport and communication. This increased the amounts in the private consumption matrix for retail trade to 3,485.9 m RM and for transport and communication to 2,778.8 m RM. The derived figures on private consumption expenditure at producers' prices were supplemented by figures in rows 31 to 41 in the last column of Table 4-16. Finally, this column entered private consumption in column 41 of the input-output table for Germany in 1936.

215 BA R3102 2705, F 141, 143, 147.
216 *StR* 511, III, pp. 21-37.

*Table 4-18*: Total private consumption of Germany in 1936
Transition from purchasers' prices to producers' prices in m RM

| | Valuation | Purchasers´ prices | Wholesale charges | Transport costs | Retail trade charges | Producers´prices |
|---|---|---|---|---|---|---|
| | Producer of consumer goods | (P1) | | | | |
| 1 | Agriculture | 8200.0 | -421.2 | -70.2 | -873.8 | 6834.8 |
| 2 | Forestry, fishery | 462.0 | -20.0 | -15.0 | -40.3 | 386.7 |
| 3 | Mining | 870.0 | -43.5 | -43.5 | -67.0 | 716.0 |
| 4 | Fuel industries | 80.0 | -4.0 | -4.0 | -2.0 | 70.0 |
| 5 | Basic iron and steel products | | | | | |
| 6 | Non-ferrous metals | | | | | |
| 7 | Foundries | | | | | |
| 8 | Fabricated iron and steel products | 139.0 | -4.0 | -6.0 | -5.0 | 124.0 |
| 9 | Machinery | 80.0 | -4.8 | -6.4 | 0.0 | 68.8 |
| 10 | Constructional steel | 30.0 | -2.0 | -3.0 | -5.0 | 20.0 |
| 11 | Vehicles and aerospace | 1000.0 | -46.4 | -68.0 | -60.0 | 825.6 |
| 12 | Electrical engineering | 240.0 | -8.8 | -17.0 | -25.0 | 189.2 |
| 13 | Precision engineering, optics | 70.0 | -2.4 | -2.6 | -8.0 | 57.0 |
| 14 | Metal products | 550.0 | -54.5 | -46.0 | -49.5 | 400.0 |
| 15 | Stone and quarrying | 50.0 | -2.0 | -5.0 | -4.2 | 38.8 |
| 16 | Ceramics | 150.0 | -6.5 | -6.0 | -4.0 | 133.5 |
| 17 | Glass | 100.0 | -3.0 | -4.0 | -4.3 | 88.7 |
| 18 | Saw mills, timber processing | 100.0 | -6.0 | -5.0 | 0.0 | 89.0 |
| 19 | Manufactured wood products | 1410.0 | -12.9 | -50.3 | -80.0 | 1266.8 |
| 20 | Chemical industry | 420.0 | -22.0 | -28.0 | -30.0 | 340.0 |
| 21 | Chemical-technical industry | 660.0 | -24.4 | -47.6 | -30.0 | 558.0 |
| 22 | Rubber and asbestos manufacture | 170.0 | -12.0 | -20.0 | -30.0 | 108.0 |
| 23 | Manufacture of paper and paper products | 60.0 | -1.5 | -2.1 | -4.0 | 52.4 |
| 24 | Printing and duplicating | 1410.0 | -54.0 | -56.0 | -80.0 | 1220.0 |
| 25 | Leather industry | 1470.0 | -10.0 | -31.4 | -60.0 | 1368.6 |
| 26 | Textiles | 3453.0 | -10.0 | -14.5 | -80.0 | 3348.5 |
| 27 | Clothing | 2600.0 | -20.0 | -64.7 | -100.0 | 2415.3 |
| 28 | Edible oil and fats | 941.0 | -20.0 | -56.0 | -60.2 | 804.8 |
| 29 | Spirits industry | 250.0 | -5.0 | -7.0 | -46.4 | 191.6 |
| 30 | Food, beverages and tobacco | 12850.0 | -381.0 | -759.5 | -900.0 | 10809.5 |
| 31 | Building and construction | 207.0 | | | | 207.0 |
| 32 | Electricity, gas and water | 800.0 | | | | 800.0 |
| 33 | Wholesale trade | | 1201.9 | | | 1201.9 |
| 34 | Retail trade | 837.2 | | | 2648.7 | 3485.9 |
| 35 | Transport and communication | 1340.0 | | 1438.8 | | 2778.8 |
| 36 | Banking and insurance | 573.0 | | | | 573.0 |
| 37 | Dwelling | 6534.8 | | | | 6534.8 |
| 38 | Government | 154.8 | | | | 154.8 |
| 39 | Other services | 2891.2 | | | | 2891.2 |
| 40 | Domestic services | 1261.0 | | | | 1261.0 |
| 1-40 | Domestic consumer goods | 52414.0 | | | | 52414.0 |
| 41 | Imports | 786.0 | | | | 786.0 |
| 1-41 | Total | 53200.0 | | | | 53200.0 |

*Source*: see text.

### 4.5.2. Gross fixed capital formation

A wealth of information has become available about investment in the Nazi period, but**,** thus far, there is no investment matrix for Germany which shows gross fixed capital formation by investing industries,[217] i.e. a cross-classification of fixed assets by industry and by product.[218] We close this gap by relying on newly explored archival records in combination with the known available sources. Integrating the results of the investment matrix as a category of final demand into the input-output table for Germany in 1936, allows consistency checks for the estimation procedure.

*Investment matrix of Germany in 1936*

Table 4-19 depicts the investment matrix with values at purchasers' prices, i.e. producers' prices plus wholesale charges and transportation costs. The producers of capital goods show up in rows and the users of capital goods in columns. Capital goods cover building and equipment excluding own account fixed assets. Military outlays are treated as current government expenditure (see chapter on government).

The investment matrix indicates that nine domestic industries of the 40 branches and the foreign sector (imports) supplied capital goods to 39 investing sectors in 1936. The main suppliers (see the last column 1-40 at purchasers' prices) were construction (5,762 m RM), machinery (2,277 m RM), and electrical engineering (1,014 m RM). Among the investing sectors, government (2,511 m RM), dwelling (2,207 m RM), and transport and communication (1,811 m RM) were predominant as can be seen from the last row 1-41. The individual cells in the investment matrix describe as to what extent the producers of capital goods contributed to gross fixed capital formation of the different sectors in Germany. They reflect the intersectoral investment pattern in 1936. Machinery e.g. supplied capital goods for 298 m RM to agriculture (cell 9/1) and for 225 m RM to building and construction (cell 9/31). Electricity, gas and water on the other hand, purchased capital goods for 157m RM from electrical engineering (cell 12/32) and for 143m RM from construction (cell 31/32).

*Sources and estimation procedure*

We compiled the investment matrix mainly by the input approach, i.e. column-wise according to the sectoral breakdown of the input-output table. This is due to the fact that our main sources offer data on the volume of capital formation installed by the various investing sectors. In addition and complementary, we applied the row-wise output approach for building and construction, for machinery and for consistency checks of summarised matrix elements with given totals. Here we are presenting only an overview on sources and estimations used for the individual branches of the investment matrix. A detailed description of gross fixed capital formation and the attached investment matrix were published in a separate article.[219]

*Agriculture:* The basic data on investment in agriculture, forestry, fishery are produced by the German Statistical Office. For 1936 they are conveniently summarised in the Statistical Handbook[220] compiled after the war. For further detailed information we drew on the archival

217 *Eurostat*, Eurostat Manual.
218 *EC*, European system of accounts (ESA), 1995, Transmission programme of data.
219 See *R. Staeglin*, Gross Fixed Capital Formation in the German Empire: An Investment Matrix for 1936, in: JWG 2013/2, pp. 189-202.
220 *Länderrat,* StH1949, pp. 606 f.

*Table 4-19*: Gross fixed capital formation (investment) matrix of Germany in 1936 at purchasers' prices in m RM

| | Investing branches | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Producer of capital goods | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Agriculture | | | | | | | | | | | | | | | | | | |
| 2 | Forestry, fishery | | | | | | | | | | | | | | | | | | |
| 3 | Mining | | | | | | | | | | | | | | | | | | |
| 4 | Fuel industries | | | | | | | | | | | | | | | | | | |
| 5 | Basic iron and steel products | | | | | | | | | | | | | | | | | | |
| 6 | Non-ferrous metals | | | | | | | | | | | | | | | | | | |
| 7 | Foundries | | | | | | | | | | | | | | | | | | |
| 8 | Fabricated iron and steel | 114 | 6 | 8 | 9 | 4 | 3 | | 4 | 26 | 12 | 10 | 10 | | 6 | 24 | 3 | 3 | |
| 9 | Machinery | 283 | 15 | 159 | 137 | 130 | 44 | 29 | 15 | 63 | 21 | 146 | 38 | 7 | 7 | 16 | 4 | 3 | 14 |
| 10 | Constructional steel | 16 | 20 | 3 | | | | | | | | | | | | 33 | | | |
| 11 | Vehicles and aerospace | 55 | 3 | | | | | | | | | 92 | | | | | | | |
| 12 | Electrical engineering | 211 | 11 | 20 | 21 | 17 | 10 | 5 | 4 | 15 | 6 | 16 | 12 | 6 | | 3 | | | |
| 13 | Precision engineering, optics | 19 | 1 | 8 | 2 | 5 | 5 | | 3 | 10 | | 5 | 6 | | | | | | |
| 14 | Metal products | 10 | | | | | | | 1 | 5 | | 5 | 4 | | | | | | |
| 15 | Stone and quarrying | | | | | | | | | | | | | | | | | | |
| 16 | Ceramics | | | | | | | | | | | | | | | | | | |
| 17 | Glass | | | | | | | | | | | | | | | | | | |
| 18 | Saw mills, timber processing | | | | | | | | | | | | | | | | | | |
| 19 | Manufactured wood products | 53 | 3 | | | | | | | | | | | | | | | | |
| 20 | Chemical industry | | | | | | | | | | | | | | | | | | |
| 21 | Chemical-technical industry | | | | | | | | | | | | | | | | | | |
| 22 | Rubber and asbestos | | | | | | | | | | | | | | | | | | |
| 23 | Manufacture of paper etc. | | | | | | | | | | | | | | | | | | |
| 24 | Printing and duplicating | | | | | | | | | | | | | | | | | | |
| 25 | Leather industry | | | | | | | | | | | | | | | | | | |
| 26 | Textiles | | | | | | | | | | | | | | | | | | |
| 27 | Chlothing | | | | | | | | | | | | | | | | | | |
| 28 | Edible oil and fats | | | | | | | | | | | | | | | | | | |
| 29 | Spirits industry | | | | | | | | | | | | | | | | | | |
| 30 | Food, beverages and tobacco | | | | | | | | | | | | | | | | | | |
| 31 | Building and construction | 111 | 6 | 50 | 58 | 39 | 15 | 9 | 7 | 32 | 10 | 133 | 18 | 4 | 4 | 21 | 2 | 2 | |
| 32 | Electricity, gas and water | | | | | | | | | | | | | | | | | | |
| 33 | Wholesale | | | | | | | | | | | | | | | | | | |
| 34 | Retail trade | | | | | | | | | | | | | | | | | | |
| 35 | Transport and communication | | | | | | | | | | | | | | | | | | |
| 36 | Banking & Insurance | | | | | | | | | | | | | | | | | | |
| 37 | Dwelling | | | | | | | | | | | | | | | | | | |
| 38 | Government | | | | | | | | | | | | | | | | | | |
| 39 | Other services | | | | | | | | | | | | | | | | | | |
| 40 | Domestic services | | | | | | | | | | | | | | | | | | |
| 1-40 | Domestic investments | **872** | **65** | **248** | **227** | **195** | **77** | **43** | **34** | **151** | **49** | **407** | **88** | **17** | **17** | **97** | **9** | **8** | **14** |
| 41 | Imports | 4 | | | 1 | 6 | | | | 2 | | 13 | | | | | | | |
| 1-41 | Total investments | **876** | **65** | **248** | **228** | **201** | **77** | **43** | **34** | **153** | **49** | **420** | **88** | **17** | **17** | **97** | **9** | **8** | **14** |

*Source*: see text.

*Continuation table 4-19*: Gross fixed capital formation (investment) matrix of Germany in 1936 at purchasers' prices in m RM

| Manufactered wood products | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper a. paper products | Printing and duplicating | Leather industry | Textiles | Chlothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale | Retail trade | Transport and communication | Banking & Insurance | Dwelling | Government | Other services | Domestic services | Total | Total at producers' prices |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 1-40 | 1-40 |
| | | | | | | | | | | | | | | | | | | | | | | | |
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| 5 | 9 | | 5 | 5 | | 4 | 5 | | 2 | | 6 | 6 | 7 | | | | | | 10 | | | **306** | **275** |
| 26 | 89 | 29 | 8 | 26 | 25 | 14 | 114 | 33 | 6 | 3 | 75 | 225 | 88 | 25 | 20 | 89 | 35 | | 199 | 17 | | **2277** | **2095** |
| | | | | | | | | | | | | | 27 | 9 | | 309 | | | 179 | | | **596** | **513** |
| | | | | | | | | | | | | | | 122 | 81 | 177 | 4 | | 119 | 87 | | **740** | **636** |
| | 10 | | | 10 | 3 | | 20 | 1 | 4 | 1 | 30 | 10 | 157 | 13 | 7 | 169 | 13 | | 199 | 10 | | **1014** | **943** |
| | 6 | | | 2 | | 1 | 6 | | 1 | | 10 | | | | | | | | 60 | 27 | | **177** | **154** |
| | 2 | | | | | 2 | 5 | 1 | | | 4 | 13 | 14 | | | | | | 99 | | | **165** | **144** |
| | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | 16 | 4 | | 13 | 8 | | 13 | | 129 | 20 | | **259** | **247** |
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| 3 | 51 | | 2 | 8 | 8 | | 37 | | 4 | | 32 | 15 | 143 | 61 | 39 | 1049 | 22 | 2207 | 1506 | 54 | | **5762** | **5619** |
| | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | **34** |
| | | | | | | | | | | | | | | | | | | | | | | | **109** |
| | | | | | | | | | | | | | | | | | | | | | | | |
| **34** | **167** | **29** | **15** | **51** | **36** | **21** | **187** | **35** | **17** | **4** | **173** | **273** | **436** | **243** | **155** | **1793** | **87** | **2207** | **2500** | **215** | | **11296** | **11296** |
| | 5 | | | 1 | | 1 | 5 | | | | | | 5 | | | 18 | | | 11 | | | **72** | **72** |
| **34** | **172** | **29** | **15** | **52** | **36** | **22** | **192** | **35** | **17** | **4** | **173** | **273** | **441** | **243** | **155** | **1811** | **87** | **2207** | **2511** | **215** | | **11368** | **11368** |

records of the StRA, which comprise interim results of their never finished input-output table.[221] Additionally we used the input-output experience of the German Institute for Economic Research (DIW Berlin).[222]

*Industry:* In the investment matrix we used, either directly or condensed into 18 input-output branches, the basic information[223] on total gross fixed capital formation of Germany in 1936 (2,159 m RM) disaggregated by 36 branches of industry. Five aggregated branches, however, had to be split up to obtain the investment numbers of the other 11 remaining input-output branches. This could mainly be done by drawing on a confidential document on profits and the financial situation of 52 companies in 11 basic and armament industries 1936-1939.[224] The respective wage bill of these industries in proportion to the corresponding category "compensation of employees" in our input-output table was applied to disaggregate the given investment figures of the group of five into the 11 industrial branches.

In the following step, the expenditure on gross fixed capital formation of each of the 29 investing branches was allocated to the industries delivering the capital goods. For this, we applied a table, prepared by the StRA, with data on total investment of seven aggregated industrial branches broken down into three investment categories for 1936:[225] buildings and construction (excluding residential buildings), machinery and plant equipment, tools and short-lived capital goods. Thus far, we have excluded the aircraft industry (Flugmotoren- und Flugzeugzellenbau) from the branch "vehicles and aerospace". By including 260 m RM for gross fixed capital formation in 1936 this gap was closed:[226] Machinery (55 m RM), vehicles and aerospace (92 m RM), and building and construction (113 m RM) delivered these investment goods. The allocation of total gross fixed capital formation of the remaining 13 industrial branches to the branches producing the appropriate capital goods was carried out in the final, compiling step, i.e. balancing the matrix.

*Transport, dwelling, utilities:* Detailed data on investment in transport and communication (2,442 m RM) are contained in the Statistical Handbook.[227] Expenditure of capital formation both in roads (471 m RM) and in waterways and harbours (159 m RM) had to be assigned to the government (public administration).[228] 692 m RM[229] of the remaining difference of 1,812 m RM were spent on the construction of the Highways (Reichsautobahnen), an affiliate of the railways (Reichsbahn). For the allocation of these investments to the branches delivering the

221 BA R3102 2701, F 11-13 and BA R3102 2731.

222 *D. Mertens/W. Kirner*, Input-Output-Rechung: Investitionsverflechtung in der Bundesrepublik Deutschland 1950 bis 1970, Berlin 1967.

223 *Länderrat,* StH1949, p. 605; BA R3102 2701, F 49.

224 BA R3102 2702, F 248-254. The 52 companies are also listed by names.

225 BA R3102 2701, F 36.

226 The data for the aircraft industry were derived from *Budraß,* Flugzeugindustrie, Table 21.

227 *Länderrat,* StH1949, p. 606; see also *A. Ritschl* (Hat das Dritte Reich wirklich eine ordentliche Beschäftigungspolitik betrieben? in: JWG 2003/1, pp. 125-140, Table 1). He depicts the same figures in detail. His total, however, is significantly lower. This is due to the neglect of "Übriges Verkehrswesen", i.e. communication, ocean shipping and inland navigation. Ritschl's *Table 1* contains a category "III Sonstige", however, with just blanks for all years 1932-1938.

228 BA R3102 2701, F 122-125.

229 A letter (BA R3102 2731) of the StRA to the Ministry of Economics (1.11.1938) contains a table on public and private investment between 1924 and 1937 broken down into various branches: Highways made up 600 m RM.

capital goods we drew on the experience of the DIW Berlin.[230] The Statistical Handbook and an unpublished article by the StRA provide the relevant information on investment in dwelling:[231] The 2,207 m RM in 1936 was entirely allocated to building and construction as supplier. The investment data of electricity, gas and water (386 m RM) are available in an archival record of the StRA.[232] The amount of purchases from building and construction (143 m RM) was derived by using information of the StRA on shares of the building volume for individual sectors (for energy 37%).[233] The remaining investment on equipment (243 m RM) was divided into machinery (38 m RM for steam and water turbines)[234] and into tools and short-lived capital goods (205 m RM).

*Government:* For investment of the government (public administration) (5,200 m RM) and of other sectors (800 m RM) we drew on the same file from the StRA.[235] In order to split up these numbers and to assign the figures to the appropriate industries producing the investment goods quite a lot of calculations had to be done:

- The amount for further sectors (trade, banking & insurance, other services) consists of private investment (700 m RM) and public investment (100 m RM) for social security. The public part was transferred to the government.
- From 1935 onwards, public capital formation increased significantly. We assumed that this additional amount of 5,300 m RM comprised 2,800 m RM of hidden military spending in 1936:[236] We attributed 2,400 m RM to barracks, airfields, fortifications, etc.[237] and 400 m RM to armament plants. The entire amount was treated as current government expenditure.

We thus arrived at 2,500 m RM of government investment proper. This was divided into two components: non-military building and construction (1,506 m RM) and non-military equipment (994 m RM). The first component consists of buildings for public administration (876 m RM)[238] and of expenditure on roads, waterways and harbours (630 m RM). In order to estimate the investment pattern of non-military equipment, the second component, we used two corresponding statistical compilations: The investment matrix of Germany in 1950 by DIW Berlin[239] and the expenditure pattern of the German government, excluding military, in 1954 put forward by the Rhenish-Westphalian Institute for Economic Research (RWI)[240]. Both sources revealed a similar structure of the purchases of capital goods by the government.

The DIW-investment matrix of Germany in 1950 was the main basis for dividing investment of other sectors (700 m RM) into trade, banking & insurance, and other services. Capital formation in trade itself (398 m RM) was disaggregated into wholesale (243 m RM) and retail trade (155 m RM) by applying their ratio of gross production. The remaining amount

230 *Mertens/Kirner*, Input-Output-Rechung, Table I.
231 *Länderrat,* StH1949, p. 606; BA R3102 2701, F 52-58.
232 BA R3102 2731, F 10.
233 BA R3102 2731, F 4.
234 *Scherner*, Nazi, pp. 461-462; BA R3 1917: Output of German Machinery 1936-1942.
235 BA R3102 2731, F 10.
236 Similar speculations can be found in *Scherner*, Nazi, p. 8.
237 See *Klein*, Germany's Preparation, Table IV.
238 This figure was based on BA R3102 2701, F 4, where building made up 35% of total government investment.
239 *Mertens/Kirner*, Input-Output-Rechung, Table I, column 55.
240 *Komarnicki/Neuhaus*, Staatssektor, 2* and 86*.

was assigned to investment in banking & insurance (87 m RM) and other services (215 m RM). Finally, selected cells of the DIW-investment matrix[241] were used to distribute the expenditure to the supplying producers of the investment goods in 1936.

Even after the compilation all of these elements it turned out that the investments of several industries with a rather low volume of capital goods had not been specified: this small gap was closed by drawing on the similar German investment matrix of 1950. The few missing data on capital goods produced by machinery were supplemented by comparing the order and proportions of the available investment matrix of Germany in 1936 with the corresponding matrix elements in 1950.

Finally, machinery deliveries to the investing sectors had to be revised to some extent: using the production statistics of Speer's Ministry of Armament Production[242] and distinguishing between output of intermediate goods and capital goods,[243] we revised some figures on machinery output in order to arrive at 2,161 m RM of investment goods produced by the machinery branch.[244]

To cover imported investment goods, not yet included in the "domestic" matrix, we drew on two different statistical sources for 1936: one source[245] provided the total of imported investment goods (72 m RM) and other capital goods from four foreign branches of industry: vehicles and aerospace, electrical engineering, precision engineering, optics, and shipbuilding. The other source[246] recorded 12 types of machinery. It specified imports of 32 m RM for total machinery. Thus, this amount could be broken down into the sectors typically investing in this kind of machinery. The combined allocation of imported equipment in 1936 is shown in row 41 of the investment matrix of Table 4-19.

The last row of the investment matrix presents total gross fixed capital formation valued at purchasers' prices of investing sectors. In Table 4-20 our figures, aggregated to groups, are compared with investment numbers presented by other scholars. The results reveal that the differences in governmental investment and in total investment calculated by Fremdling/Staeglin and Scherner on the one hand and Spoerer and Ritschl on the other are due to a different treatment of military investment. Although deviations between Fremdling/Staeglin and Scherner not only appear in governmental investment but also in industry, transport and communication as well, the distribution according to groups of investing sectors is quite similar. Concerning industry, the deviations are due to our bottom-up approach: whereas we aggregated our figures based on a detailed matrix the others directly drew on aggregates. Concerning the other two sectors, deviations have to be ascribed to a different classification of investment in roads, waterways and harbours. Our share of total investment in GDP as well matches Scherner's recent contribution more closely than older studies on gross fixed capital formation, e.g. by Spoerer and Ritschl.

241 *Mertens/Kirner*, Input-Output-Rechung, Table I.
242 BA R3 1917.
243 *Scherner*, Armament, Table A3.
244 This figure has been calculated by Scherner for 1936, *Ibid.*, Table A5
245 *Gehrig*, Zeitreihe, Table 2.
246 *Scherner*, Armament, Table A4.

*Table 4-20*: Comparison of aggregated gross fixed capital formation (investment) of Germany in 1936, m RM

| Investing branches | 1<br>Fremdling /Staeglin | 2<br>Scherner (2013) | 3<br>Spoerer (2005) | 4<br>Ritschl (1992) |
|---|---|---|---|---|
| Agriculture, forestry, fishing | 941 | 900 | 850 | 850 |
| Industry | 2757 | 2650 | 2159 | 2159 |
| Electricity, gas, water (public utilities) | 441 | 386 | * | 657 |
| Transport and communication | 1811** | 2442*** | 2334*** | 2442*** |
| Dwelling (housing) | 2207 | 2207 | 2207 | 2207 |
| Other private sectors | 700 | 800 | 850 | 85° |
| Government (other public investment) | 2511 | 1377 | 5400°° | 5400°° |
| **Total investments** | **11368** | **10762** | **13800°°** | **13800°°** |
| Share of investments in GDP | 13.7% | 13.4% | 17.4% | 17.4% |
| GDP (national income) | 82679 | 80313 | 79171 | 79171°°° |

*Notes and sources*: 1 Investment matrix; 2 Scherner(Armament, Table 3); 3 Spoerer (Demontage, Table 1b); Ritschl (Höhe 1992, Tables III, IX); * included in other private sectors; ** excluding roads, waterways and harbours; *** including roads, waterways and harbours; ° calculated as difference to total investments; °° including military investment; °°° Ritschl/Spoerer (Bruttosozialprodukt, Table 3).

### 4.5.3. Changes in inventories

Disaggregated official data on changes in inventories of Germany are only available until 1934.[247] The data indicate that the inventories in the sectors fluctuated heavily from year to year with both positive and negative signs. For that reason, it was impossible to extrapolate the development of changes in stocks to the year 1936. Furthermore, the scarcely available information on total changes of inventories in 1936 is also not consistent: the dispersion ranges from -300 m RM[248] to +1,150 m RM[249] and to +1,420 m RM.[250]

Compared with changes in inventories of the entire economy, the corresponding information on industry seems to be somewhat better. For seven aggregated branches of industry, preliminary[251] and final[252] data are available from the German Statistical Office. For preliminary and final figures, the first sign of absolute changes in inventories, plus or minus, is always the same, the totals deviated, however, in 1936 (200 m RM versus 293 m RM). Another data set offers information on changes in stocks of 52 companies in 11 basic and armaments branches of industry.[253] For these selected branches of industry, only positive changes are recorded which add up to a total amount of 161 m RM in 1936. Most detailed data on

247 *Länderrat,* StH1949, p. 604.
248 BA R 3102 2705, F 57 and BA R 2501 6627, F 348. An alternative estimation based on statistics of limited companies in Germany reveals a difference of +300 m RM between inventories at the end of June 1936 and at the end of June 1937, see *StJR* 1938, pp. 438-441.
249 *Erbe*, nationalsozialistische Wirtschaftspolitik, p. 109.
250 *Ritschl,* Deutschlands Krise, Table B.3 and *WS* 1950, p. 110.
251 *WS* 1938, p. 31.
252 BA R 3102 2701, F 42.
253 BA R 3102 2702, F 254.

changes in inventories can be found in internal hand-written work-sheets of the German Statistical Office. Unfortunately, however, they refer to the year 1933.[254]

The available but limited data on changes in inventories proved to be both inconsistent and intricate. Therefore, we decided to use this category of final demand as the balancing item when finalising our input-output table for Germany in 1936. This complies with the usual procedure of dealing with changes in inventories in the compilation of an input-output table. If on the output side, the available stock data are not reliable they are used for adjustments. Although we thus pursued this strategy, we nevertheless made use of the existing data on changes in inventories for the branches of industry as a first approach. Summing up, we obtained 1,437 m RM as total of the estimated changes in inventories for all sectors in the input-output table. This is nearly identical with the corresponding figures of the German Statistical Office and of Ritschl.[255]

### 4.6. Foreign Trade

Foreign trade consists of exports and imports which are composed of goods, services and income flows (interest, dividends, etc.). Exports are transactions from residents to non-residents while imports are transactions which go the other way. The difference between exports and imports is called trade balance. In our input-output table for Germany in 1936 the foreign trade items are defined according to SNA.[256] Exports appear as a category of final demand in column 45 of quadrant II and imports as primary input in row 41 of quadrant III of Table 2-1. We discuss the compilation of the two components of GNP (see Table 2-3) jointly because we made similar use of trade statistics and balance of payments.

*Sources and estimation procedures*

Two separate archival records contain statistics of the balance of payments: the first one, in the files of the German Statistical Office, offers information on total exports (6,500 m RM) and on total imports (5,900 m RM) in 1936.[257] The second source, in the files of the Ministry of Economics, only presents figures of the balance of trade (+ 615 m RM) divided into the balance of goods (+ 544 m RM), services (+ 546 m RM) and interest, dividend, etc. (- 475 m RM).[258] Both sources reflect more or less the same trade balance (+ 600 m RM versus + 615 m RM). We decided to rely on the amount of + 615 m RM, which Ritschl[259] also used in his time series analysis of balance of payments for Germany between 1925 and 1938. Consequently, we had to disaggregate total exports of 6,555 m RM and total imports of 5,940 m RM into goods, services and interest, dividends, etc. After that, the exports were allocated to the supplying sectors and the imports were distributed to the domestic users.

254 BA R 3102 2580a. The tables with data on many individual branches of industry are part of the StRA work on the matrix of economic interdependencies.

255 *WS* 1950, p. 110; *Ritschl,* Deutschlands Krise, Table B.5.

256 *EC,* SNA 1993, p. 331.

257 BA R3102 2700.

258 BA R3101 33068, F 48.

259 *Ritschl,* Deutschlands Krise, Table B.4 and *Idem*, Die Deutsche Zahlungsbilanz 1936-1941 und das Problem des Devisenmangels vor Kriegsbeginn, in: VfZ 39, 1991, pp. 103-123.

*Exports*

For the compilation of exported goods, two sources were available: official foreign trade statistics on goods[260] and export figures in the files of the industrial census of 1936.[261] The foreign trade data register goods are valued at free on board (fob) prices[262] whereas goods sold by the industrial firms are reported at ex-factory prices[263]. We drew on the archival records (Q1) of the industrial census. In the sources used to calculate the input-output figures, however, the coverage of exports is sometimes incomplete or had to be corrected slightly. E.g. mining (branch I[264] *Bergbau*[265]) provided no export numbers for coal (I.9), lignite (I.12), coke (I.10) and patent fuel (I.11, I.13). In order to close the gaps a special compilation also based on the industrial census[266] was combined with the detailed reports on specific industries. 455.1 m RM were assigned to mining. Deviations between source Q1 and the special compilation[267] were as well corrected for exports of the fuel industry (branch II *Kraftstoffindustrie:* 136.1 m RM were replaced by 35.9 m RM) and basic iron and steel (branch III *Eisenschaffende Industrie*: 331.5 m RM were replaced by 252.1 m RM). These corrected figures and the other numbers based on Q1 in most cases match the numbers in the published version of the census.[268] Slight deviations are to be found for branches II (plus 0.9 m RM) and XIX (minus 0.9 m RM). Total exports are the same as in the census.

In addition, we increased total industrial exports by 327 m RM in order to cover small firms as well (see the chapter on "industry"). Our final export figure of the German industry (4,946 m RM) is both higher than the one given in the foreign trade statistics (4,768 m RM)[269] and Ritschl's fob export data[270]. Furthermore, we supplemented foreign sales of goods by assuming that 50 m RM of exports came from agriculture and 5 m RM from forestry/fishery. Within the framework of the input-output concept, we finally arrived at 5,001 m RM for total exports of goods in 1936. Column 45 of Table 2-1 comprises these disaggregated figures.

The difference between total German exports (6,555 m RM) and exports of goods (5,001 m RM), thus 1,554 m RM, was ascribed to services and interest, dividends etc. of the foreign trade balance. We adopted the income figure on interest, dividends, etc. from foreign countries (105 m RM) as proposed by Ritschl[271] and registered it in the input-output table as the exported output of banking. The remaining amount of 1,449 m RM of services had to be disaggregated and assigned to supplying sectors. Unfortunately, official statistics on the balance of payments, provided by the German Statistical Office, only cover the years until

260 *Länderrat,* StH1949, pp. 397, 399, 401.
261 See the chapter on industry with references to the archival records.
262 "The fob price can be regarded as the purchaser's price that would be paid by an importer taking delivery of the goods at the exporter's frontier after loading on to a carrier and after payment of any export taxes or the receipt of any tax rebates" (*EC,* SNA 1993, p. 346).
263 According to SNA ex-factory prices are another term for producers' prices.
264 The Roman numerals follow the classification of the industrial sector by the StRA. See *Reichsamt*, deutsche Industrie and our chapter on "industry".
265 BA R3102 3545.
266 BA R3102 5685.
267 *Ibid.*
268 *Reichsamt,* deutsche Industrie, p. 90.
269 *Länderrat,* StH1949 p. 401.
270 *Ritschl,* Deutschlands Krise, Table B.4.
271 See *Ibid.*, Table B.4.

1935.[272] For that reason, we had to estimate a detailed gross balance of payments for 1936 of our own. We supplemented our data for 1936 presented before by information referring to an article on "Balance of payments of German ocean shipping 1937"[273] and by an archival record dealing with the balance of trade.[274] We thus identified about 71% of services by individual items and allocated the amount of 1,030 m RM of services to the exporting sectors below:

| Service items | m RM | Exporting sectors |
|---|---|---|
| Cargo receipts of ocean shipping | 410 | 35 Transport and communication |
| Other receipts from abroad | 12 | 35 Transport and communication |
| Receipts of harbour, canal business | 23 | 35 Transport and communication |
| Transit traffic | 99 | 35 Transport and communication |
| Passenger business of ocean shipping | 73 | 35 Transport and communication |
| Other travel business | 352 | 35 Transport and communication |
| Insurance business | 40 | 36 Banking and insurance |
| Postal services | 1 | 35 Transport and communication |
| Licences | 20 | 39 Other services |
| **Total** | **1030** | |

The remaining residual of export services (419 m RM) was finally split up into wholesale trade, government and other services. We applied corresponding ratios as the DIW had generated in their input-output experience on exports. We estimated the exports of services as follows: of wholesale trade (255 m RM), of government (24 m RM) and of other services (140 m RM). All these figures taken together with the exports of goods are presented in column 45 of the input-output table for Germany (Table 2-1).

*Imports*

For the compilation of imported goods, the same two sources are available as for exports: official foreign trade statistics on goods[275] and import figures in the unpublished files of the industrial census of 1936.[276] In contrast to export figures, the published version of industrial census does not give detailed import numbers. They were omitted to veil or even suppress any information of strategic military relevance.[277] Foreign trade statistics value the imported goods at cost, insurance and freight (cif) prices[278] whereas the imported goods in the census represent purchasers' prices. We drew on the census data because imports there had been recorded as input of the industrial branches. Thus these figures, plus the estimate to cover small firms, directly entered row 41 of our input-output table. Of course, the industrial imports (3,633 m RM) did not cover all German imports in 1936. Therefore the numbers of the foreign trade statistics (4,218 m. RM) and Ritschl's corresponding figure (4,306 m. RM)[279]

272 *StJR* 1938, p. 562.
273 *WS* 1938, pp. 602-603.
274 BA R3101 33068, F 48.
275 *Länderrat,* StH1949, pp. 397, 399, 401.
276 See the chapter on industry with references to the archival records.
277 *Fremdling/Stäglin*, Verschleierung.
278 "The cif price is the price of a good delivered at the frontier of the importing country, or the price of a service delivered to a resident, before the payment of any import duties or other taxes on imports or trade and transport margins within the country" (*EC,* SNA 1993, p. 346).
279 *Ritschl,* Deutschlands Krise, Table B.4.

are significantly higher. For that reason, we had to extend the industrial imports in 1936 to include imported goods of other sectors. Referring to our input calculations and using the DIW input-output experience with regard to import ratios of 1954 as proxy, the following amounts of imported goods were estimated: agriculture 139.1 m RM, other services 39.0 m RM, wholesale trade 102.4 m RM, retail trade 15.4 m RM, government 89.0 m RM. The imports of other sectors (384.9 m RM) and the industrial imports (3,633 m RM) together comprised 4,017.9 m RM. Drawing on Ritschl's total figure on imported goods at cif prices (4,306 m RM) yielded a residual of 288.1 m RM. By assigning imported goods to final demand categories as well, we allocated 216.1 m RM to private consumption and 72 m RM to gross fixed capital formation. These figures of imported goods entered row 41 of the input-output table for Germany in 1936 (Table 2-1) for which no charges for imported services were involved.

As for the import of services and payments of interest, dividends etc. to foreign countries, we assumed that the debit item in the balance of payments (580 m RM)[280] only referred to banking activities. Therefore this gross amount is contained in the column of banking and insurance as input from abroad (cell 41/36). For total imports of services in 1936, we again used Ritschl's figure (1,054 m RM), because we had no information about foreign service charges included in the value of imported goods at cif prices. For the same reason, we stuck to the value of imported industrial goods at purchasers' prices and thus refrained from separating trade charges and transport costs.

Finally, total imported services had to be disaggregated and assigned to domestic users. We applied the same approach as for export of services. Referring to the sources[281] mentioned before and to the resulting balance of payments for 1936, we estimated the figures for imported services in the following way:

| Service items | m RM | Importing sectors |
|---|---|---|
| Foreign expenditure of ocean shipping | 215 | 35 Transport and communication |
| Transit traffic | 33 | 35 Transport and communication |
| Other travel business | 137 | 35 Transport and communication |
| Insurance business | 60 | 36 Banking and insurance |
| Licenses | 39 | 39 Other services |
| **Total** | **484** | |

We arrived at a residual of 570 m RM by subtracting 484 m RM from all imported services of 1,054 m RM. Together with imported goods (216.1 m RM) this amount was allocated to private consumption. This figure of 786.1 m RM and the imports of all other sectors are presented in row 41 of the input-output table for Germany in 1936 (Table 2-1).

### 4.7. Components of gross domestic product

Gross domestic product (GDP) is the main indicator for national accounts when analysing and forecasting economic development from the income side. It is presented in quadrant III of the input-output table. GDP is composed by compensation of employees, indirect taxes

280 See *Ibid*.
281 See *StJR* 1938, p. 562; *WS* 1938, pp. 602-603 and BA R3101 33068, F 48.

minus subsidies, consumption of fixed capital, and mixed income/operating surplus. The compilation of each component is described for Germany in 1936.

### 4.7.1 Compensation of employees

We recorded or estimated the respective wage bills as an integral part of calculating inputs and gross production values. For industry, the questionnaire of the 1936-census explicitly demanded reporting gross wages or salaries, thus including employers' contributions to social security payments. The reported wage bill had to also include the equivalent of non-monetary benefits such as free lodging and payment in kind. For agriculture and government, the wage bill was provided in a comparable way by the sources used for the construction of our production account. Only for banking & insurance and domestic services did we use an average wage multiplied by the respective work force to obtain the desired figure for the compensation of employees. In all other cases, we applied the recorded or estimated cost structure, frequently based on the preliminary calculations by the StRA for the never finished input-output table of 1933. These cost structures certainly included all gross components of employees' compensation. We applied this share of wages, multiplied by the 1936 volume of costs to calculate the wage bill.

### 4.7.2. Indirect taxes minus subsidies

Both direct and indirect taxes in Germany were compulsory and without reference to specific benefits received. By imposing taxes, resources from the private to the public sector are transferred either in money or in kind. Direct taxes levied on income, property and other sources mainly consist of taxes paid by households and corporations, i.e. income tax, corporation tax, and property tax. Indirect taxes are levied on production and imports. These are "taxes on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers; they include taxes and duties on imports" (SNA 1993, p. 169). In 1936, they comprised excise duties, customs duties, turnover tax, and transfer taxes. The turnover tax was levied as a gross tax because there was no tax on value added (VAT) at that time. All indirect taxes[282] were integrated into our input-output table as costs of production. This was in contrast to direct taxes which are regarded as a part of redistributing income according to the convention of SNA.

In Germany, subsidies were relevant as well. They were current unrequited payments of the government to enterprises on the basis of goods or services which they produced, sold or imported. "Subsidies are equivalent to negative taxes on production in so far as their impact on the operating surplus is in the opposite direction to that of taxes on production".[283] We referred to them when compiling the GDP component of "indirect taxes minus subsidies" in the input-output table for Germany in 1936.

Table 4-21 presents the tax matrix for 1936 which was constructed according to the bottom-up procedure. It comprises 40 production sectors with excise duties, customs duties, other transaction taxes, turnover tax as well as federal states' and municipal taxes. Subsidies of the

282 Nowadays the term of „indirect taxes" is substituted for by „taxes on products and import duties" and instead of „direct taxes" the term of "current taxes" is used in national accounts (see *EC,* SNA 1993, pp. 169 and 191).

283 *Ibid.*, p. 173.

*Table 4-21:* Tax matrix (indirect taxes and subsidies) of Germany in 1936 in m RM

| Production sectors | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing | Manufactured wood products | Chemical industry | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| Indirect taxes | 0.0 | 0.0 | 60.0 | 26.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C.0 | 0.0 | 0.0 | |
| Excise duties (*StJR* 1938, p. 552) | 32.6 | 0.0 | 0.0 | 2.7 | 8.8 | 0.0 | 0.2 | 0.5 | 0.0 | 0.7 | 6.1 | 0.0 | 0.0 | 1.8 | 0.6 | 0.0 | 1.2 | C.3 | 31.9 | 5.5 | |
| Customs duties (*StJR* 1938, pp. 552-555) | 3.0 | 0.0 | 5.8 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | C.0 | 0.0 | 0.0 | |
| Other transaction taxes (*StJR*, 1939/40, p. 569) | 65.6 | 5.7 | 97.5 | 12.4 | 24.3 | 8.7 | 5.4 | 69.3 | 68.5 | 20.4 | 51.3 | 55.6 | 13.7 | 3.0 | 29.3 | 5.8 | 6.0 | 14.9 | 43.4 | 41.4 | |
| Turnover tax 1936 (*StR*, 511, I, p. 21; BA R3102 2700) | | | 26.9 | 6.3 | 33.5 | 11.9 | 7.4 | 21.1 | 27.1 | 8.1 | 20.3 | 15.5 | 3.9 | 9.4 | 11.6 | 2.3 | 2.4 | 6.0 | 17.4 | 20.9 | |
| Federal states´ and municipal taxes (*WS*,1938, pp.747-750) | **101.2** | **5.7** | **190.1** | **50.6** | **66.6** | **20.6** | **13.0** | **90.9** | **95.6** | **29.1** | **78.7** | **71.2** | **17.6** | **14.2** | **52.3** | **8.1** | **9.5** | **21.2** | **92.6** | **68.8** | |
| **Total indirect taxes** | -5.0 | -38.0 | -4.0 | | | | | | | -300.0 | -300.0 | | | | | | | | | | |
| minus subsidies (see government expenditure) | **101.2** | **0.7** | **152.1** | **46.6** | **66.6** | **20.6** | **13.0** | **90.9** | **95.6** | **-270.9** | **-221.3** | **71.2** | **17.6** | **14.2** | **52.3** | **8.1** | **9.5** | **21.2** | **92.6** | **68.8** | |
| **Indirect taxes minus subsidies** | | | | | | | | | | | | | | | | | | | | | |

| Production sectors | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper a. paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance | Dwelling | Government | Other services | Domestic services | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 1-40 |
| Indirect taxes | 31.1 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 299.7 | 4.7 | 1649.0 | 0.0 | 0.0 | 142.2 | 64.8 | 0.0 | 0.0 | 0.0 | C.0 | 16.8 | 0.0 | **2297.0** |
| Excise duties (*StJR* 1938, pp. 552-555) | 0.0 | 4.6 | 3.4 | 0.0 | 1.6 | 16.5 | 15.6 | 3.2 | 0.9 | 498.1 | 0.0 | 0.0 | 584.2 | 45.3 | 0.0 | 0.0 | 0.0 | C.0 | 15.1 | 0.0 | **1282.4** |
| Other transaction taxes (*StJR*, 1939/40, p. 569) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 9.0 | 0.0 | 25.8 | 37.0 | 243.4 | 132.4 | 19.7 | C.0 | 67.7 | 0.0 | **563.9** |
| Turnover tax 1936 (*StR*, 511, I, p. 21; BA R3102 2700) | 16.9 | 8.3 | 30.0 | 35.0 | 19.7 | 120.8 | 72.9 | 37.6 | 18.9 | 315.0 | 123.2 | 16.4 | 237.9 | 388.3 | 19.9 | 4.4 | | | 154.0 | | **2261.0** |
| Federal states´ and municipal taxes (*WS*,1938, pp.747-750) | 8.6 | 3.5 | 7.8 | 13.1 | 13.9 | 52.7 | 19.3 | 11.4 | 5.7 | 258.9 | 59.4 | 23.1 | 53.3 | 32.4 | 66.8 | 28.8 | 63.7 | C.0 | 98.4 | 0.0 | **1072.9** |
| **Total indirect taxes** | **56.6** | **16.3** | **41.2** | **50.0** | **35.1** | **190.0** | **107.8** | **351.9** | **30.2** | **2727.0** | **191.6** | **39.5** | **1043.4** | **567.8** | **330.1** | **165.6** | **83.4** | **0.0** | **352.1** | **0.0** | **7477.1** |
| minus subsidies (see government expenditure) | | | | | | | | | | | | | | | | | | | | | **-647.0** |
| **Indirect taxes minus subsidies** | **56.6** | **16.3** | **41.2** | **50.0** | **35.1** | **190.0** | **107.8** | **351.9** | **30.2** | **2727.0** | **191.6** | **39.5** | **1043.4** | **567.8** | **330.1** | **165.6** | **83.4** | **0.0** | **352.1** | **0.0** | **6830.1** |

receiving sectors are also shown. The matrix indicates that most of the excise duties were paid by food, beverages and tobacco (1,649 m RM) whereas the highest customs (import) duties occurred in wholesale trade (584.2 m RM). Other transaction taxes were mainly levied on transport and communication (243.4 m RM). Turnover tax as well as federal states' and municipal taxes were relevant for nearly all sectors. In total, indirect taxes minus subsidies amounted to 6,830 m RM in Germany in 1936. This number is lower than the corresponding figures calculated by other scholars (e.g. Grünig, Ritschl, German Statistical Office).[284] The reason for this significant difference of 11,000 m RM at greatest is due to a different treatment of direct taxes. In contrast to our approach, which is in line with the SNA, the others included direct taxes as an integral component of their GDP calculation. Neither our tax matrix of Table 4-21 nor its detailed summary in row 43 of the input-output table for Germany in 1936, included income, corporation and property taxes.

*Sources and estimation procedure*

Table 4-21 is the condensed version of the detailed tax matrix (Table 4-22) in which the indirect taxes are assigned to the proper sectors of production. For that we used all available information broken down into various types of indirect taxes of Germany in 1936, e.g. taxes paid on goods like tobacco, beer, spirits, sugar and salt. This sample of numerous special indirect taxes was aggregated into five groups of indirect taxes shown in Table 4-21 (excise duties, customs duties, other transaction taxes, turnover tax, federal states' and municipal taxes) supplemented by figures on subsidies. The distribution of the individual taxes[285] to the 40 sectors concerned needed a lot of assumptions and estimates, as the following notes explain.

*Excise duties*

Official data on excise duties for the accounting years of 1935/36 and 1936/37 are published in the 1938-Statistical Yearbook of Germany. We derived the actual receipts of individual taxes for the calendar year of 1936 and allocated them to the assessed production sectors. The names of excise duties, e.g. tobacco tax and beer tax, helped us to identify the sectors concerned, e.g. food, beverages and tobacco. Additionally, we could refer to an internal table in the archives[286] listing receipts of public administration in 1933 divided up by individual taxes on the one hand and by assessed sectors on the other. The results of Table 4-22 indicate that most of the excise duties were paid by the industry branch of food, beverages and tobacco.

*Import duties*

Figures on import duties could also be obtained from the 1938-Statistical Yearbook of Germany. They are available for the calendar year of 1936 already disaggregated according to commodity groups of nutrition, trade and industry. At first we allocated specific import duties, e.g. on raw tobacco or coffee, to the branches concerned, e.g. food, beverages and tobacco. Then we estimated the distribution of import duties on individual commodities listed in foreign trade statistics by assuming the potential importing sectors. We also took into account trade and other services as can be seen in Table 4-22.

284 See the data in Table 3-1 and also *Oshima*, Statistische Materialien, Table 3.
285 The original German names of the individual taxes and of the goods assessed are not translated.
286 BA R3102 2705, F 213.

*Table 4-22:* Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| Production sector | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing | Manufactured wood products | Chemical industry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **Indirect taxes** | **0.0** | **0.0** | **60.0** | **26.8** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| | | | | | | | | | | | | | | | | | | | | |
| **Excise duties** | | | | | | | | | | | | | | | | | | | | |
| Tabaksteuer | | | | | | | | | | | | | | | | | | | | |
| Materialsteuer...Zigarettentabak | | | | | | | | | | | | | | | | | | | | |
| Biersteuer | | | | | | | | | | | | | | | | | | | | |
| Verbrauchsabgabe Branntwein, Spiritusmoncpol | | | | | | | | | | | | | | | | | | | | |
| Branntweine'satzsteuer | | | | | | | | | | | | | | | | | | | | |
| Zuckersteuer | | | | | | | | | | | | | | | | | | | | |
| Salzsteuer | | | 60.0 | | | | | | | | | | | | | | | | | |
| Zündwarensteuer | | | | | | | | | | | | | | | | | | | | |
| Zündwarenmonopol | | | | | | | | | | | | | | | | | | | | |
| Leuchtmittelsteuer | | | | | | | | | | | | | | | | | | | | |
| Spielkartensteuer | | | | | | | | | | | | | | | | | | | | |
| Essig- Säuresteuer | | | | | | | | | | | | | | | | | | | | |
| Süßstoffsteuer | | | | | | | | | | | | | | | | | | | | |
| Mineralölsteuer | | | | 26.8 | | | | | | | | | | | | | | | | |
| Fettsteuer | | | | | | | | | | | | | | | | | | | | |
| Schlachtsteuer | | | | | | | | | | | | | | | | | | | | |
| Sonstige Abgaben | | | | | | | | | | | | | | | | | | | | |
| **Total excise duties** | **0.0** | **0.0** | **60.0** | **26.8** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| | | | | | | | | | | | | | | | | | | | | |
| **Customs duties** | | | | | | | | | | | | | | | | | | | | |
| Rohtabak | | | | | | | | | | | | | | | | | | | | |
| Tabakfabrikat | | | | | | | | | | | | | | | | | | | | |
| Bierzoll | | | | | | | | | | | | | | | | | | | | |
| Branntweinzoll | | | | | | | | | | | | | | | | | | | | |
| Weinzoll | | | | | | | | | | | | | | | | | | | | |

*Continuation table 4-22:* Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| **Production sector** | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing | Manufactured wood products | Chemical industry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **Indirect taxes** | | | | | | | | | | | | | | | | | | | | |
| Schaumwein | | | | | | | | | | | | | | | | | | | | |
| Zucker | | | | | | | | | | | | | | | | | | | | |
| Salz | | | | | | | | | | | | | | | | | | | | |
| Kaffee | | | | | | | | | | | | | | | | | | | | |
| Kakao | | | | | | | | | | | | | | | | | | | | |
| Tee | | | | | | | | | | | | | | | | | | | | |
| **according to the product groups of the foreign trade statistics** | | | | | | | | | | | | | | | | | | | | |
| I.A Lebende Tiere | 29.9 | | | | | | | | | | | | | | | | | | | |
| I. B Nahrungsmittel tierischen Ursprungs | | | | | | | | | | | | | | | | | | | | |
| I. C Nahrungsmittel pflanzlichen Ursprungs | 2.7 | | | | | | | | | | | | | | | | | | | |
| I. D Hopfen | | | | | | | | | | | | | | | | | | | | |
| II.A Rohstoffe | | | | | | | | | | | | | | | 0.2 | | | 0.3 | | 0.8 |
| II. B Halbwaren | | | | 2.7 | 1.8 | | | | | | | | | | 0.4 | | | 27.7 | | 1.5 |
| darunter Kraftstoffe und Schmieröle | | | | | | | | | | | | | | | | | | | | |
| II.C. 1 Vorerzeugnisse Fertigwaren | | | | | 7.0 | | 0.2 | 0.5 | | 0.7 | | | | 1.8 | | | 1.2 | | 4.2 | 2.9 |
| II.C.2 Enderzeugnisse Fertigwaren | | | | | | | | | | | 6.1 | | | | | | | | | 1.3 |
| **Total customs duties** | **32.6** | **0.0** | **0.0** | **2.7** | **8.8** | **0.0** | **0.2** | **0.5** | **0.0** | **0.7** | **6.1** | **0.0** | **0.0** | **1.8** | **0.6** | **0.0** | **1.2** | **0.3** | **31.9** | **6.5** |
| | | | | | | | | | | | | | | | | | | | | |
| **Other transaction taxes** | | | | | | | | | | | | | | | | | | | | |
| Grunderwerb | | | | | | | | | | | | | | | | | | | | |
| Kraftfahrzeugsteuer | 3.0 | | 5.8 | 2.4 | | | | | | | 1.0 | | | | 10.8 | | | | | |
| Versicherungssteuer | | | | | | | | | | | | | | | | | | | | |
| Rennwett- u. Lotterie | | | | | | | | | | | | | | | | | | | | |
| Wechselsteuer | | | | | | | | | | | | | | | | | | | | |
| Personenbeförderung | | | | | | | | | | | | | | | | | | | | |
| Güterbeförderung | | | | | | | | | | | | | | | | | | | | |
| **Total of other transaction taxes** | **3.0** | **0.0** | **5.8** | **2.4** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **1.0** | **0.0** | **0.0** | **0.0** | **10.8** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |

*Continuation table 4-22:* Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| **Production sector** | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing | Manufactured wood products | Chemical industry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **Indirect taxes** | **65.6** | **5.7** | **97.5** | **12.4** | **24.3** | **8.7** | **5.4** | **69.3** | **68.5** | **20.4** | **51.3** | **55.6** | **13.7** | **3.0** | **29.3** | **5.8** | **6.0** | **14.9** | **43.4** | **41.4** |
| **Turnover tax 1936** | **65.6** | **5.7** | **97.5** | **12.4** | **24.3** | **8.7** | **5.4** | **69.3** | **68.5** | **20.4** | **51.3** | **55.6** | **13.7** | **3.0** | **29.3** | **5.8** | **6.0** | **14.9** | **43.4** | **41.4** |
| | | | | | | | | | | | | | | | | | | | | |
| **Federal states' and municipal taxes** | | | | | | | | | | | | | | | | | | | | |
| Allgemeine Gewerbesteuer | | | 24.3 | 6.3 | 33.5 | 11.9 | 7.4 | 21.1 | 27.1 | 8.1 | 20.3 | 15.5 | 3.9 | 9.4 | 11.6 | 2.3 | 2.4 | 6.0 | 17.4 | 20.9 |
| Gewerbesonderstauern (je 0.5 zu Bau und Großh) | | | | | | | | | | | | | | | | | | | | |
| Steuer.. Wandergewerbe | | | | | | | | | | | | | | | | | | | | |
| Zuschlag Grunderwerb | | | | | | | | | | | | | | | | | | | | |
| Stempelsteuer | | | | | | | | | | | | | | | | | | | | |
| Gemeindebiersteuer | | | | | | | | | | | | | | | | | | | | |
| Gemeindegetränkesteuer | | | | | | | | | | | | | | | | | | | | |
| Vergnügungssteuer | | | | | | | | | | | | | | | | | | | | |
| Grubenst. Saarland | | | 2.6 | | | | | | | | | | | | | | | | | |
| SonslLGst | | | | | | | | | | | | | | | | | | | | |
| **Total of federal states' and municipal taxes** | | | **26.9** | **6.3** | **33.5** | **11.9** | **7.4** | **21.1** | **27.1** | **8.1** | **20.3** | **15.5** | **3.9** | **9.4** | **11.6** | **2.3** | **2.4** | **6.0** | **17.4** | **20.9** |
| | | | | | | | | | | | | | | | | | | | | |
| **Total indirect taxes** | **101.2** | **5.7** | **190.1** | **50.6** | **66.6** | **20.6** | **13.0** | **90.9** | **95.6** | **29.1** | **78.7** | **71.2** | **17.6** | **14.2** | **52.3** | **8.1** | **9.5** | **21.2** | **92.6** | **68.8** |
| **Subsidies (see government expenditure)** | **-5.0** | **-38.0** | **-4.0** | | | | | | | **-300.0** | **-300.0** | | | | | | | | | |
| **Indirect taxes minus subsidies** | **101.2** | **0.7** | **152.1** | **46.6** | **66.6** | **20.6** | **13.0** | **90.9** | **95.6** | **-270.9** | **-221.3** | **71.2** | **17.6** | **14.2** | **52.3** | **8.1** | **9.5** | **21.2** | **92.6** | **68.8** |

*Continuation table 4-22:* Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| Production sector | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance | Dwelling | Government | Other services | Domestic services | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indirect taxes** | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | **1-40** |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Excise duties** | | | | | | | | | | | | | | | | | | | | | | |
| Tabaksteuer | | | | | | | | | | | 655.8 | | | | | | | | | | | **655.8** |
| Materialsteuer...Zigarettentabak | | | | | | | | | | | 177.8 | | | | | | | | | | | **177.8** |
| Biersteuer | | | | | | | | | | | 286.0 | | | | | | | | | | | **286.0** |
| Verbrauchsabgabe Branntwein, Spiritusmonopol | | | | | | | | | | 4.6 | | | | 42.16 | 64.83 | | | | | 16.8 | | **228.4** |
| Branntweinersatzsteuer | | | | | | | | | | 0.1 | | | | | | | | | | | | **0.1** |
| Zuckersteuer | | | | | | | | | | | 325.2 | | | | | | | | | | | **325.2** |
| Salzsteuer | | | | | | | | | | | | | | | | | | | | | | **60.0** |
| Zündwarensteuer | | 12.1 | | | | | | | | | | | | | | | | | | | | **12.1** |
| Zündwarenmonopol | | 5.9 | | | | | | | | | | | | | | | | | | | | **5.9** |
| Leuchtmittelsteuer | | 13.1 | | | | | | | | | | | | | | | | | | | | **13.1** |
| Spielkartensteuer | | | | 1.9 | | | | | | | | | | | | | | | | | | **1.9** |
| Essig- Säuresteuer | | | | | | | | | | | 2.8 | | | | | | | | | | | **2.8** |
| Süßstoffsteuer | | | | | | | | | | | 0.3 | | | | | | | | | | | **0.3** |
| Mineralölsteuer | | | | | | | | | 299.7 | | | | | | | | | | | | | **26.8** |
| Fettsteuer | | | | | | | | | | | 196.6 | | | | | | | | | | | **299.7** |
| Schlachtsteuer | | | | | | | | | | | 4.5 | | | | | | | | | | | **196.6** |
| Sonstige Abgaben | | | | | | | | | | | | | | | | | | | | | | **4.5** |
| **Total excise duties** | **0.0** | **31.1** | **0.0** | **0.0** | **1.9** | **0.0** | **0.0** | **0.0** | **299.7** | **4.7** | **1649.0** | **0.0** | **0.0** | **142.2** | **64.8** | **0.0** | **0.0** | **0.0** | **0.0** | **16.8** | **0.0** | **2297.0** |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Customs duties** | | | | | | | | | | | | | | | | | | | | | | |
| Rohtabak | | | | | | | | | | | 157.0 | | | | | | | | | | | **157.0** |
| Tabakfabrikat | | | | | | | | | | | 2.7 | | | | | | | | | | | **2.7** |
| Bierzoll | | | | | | | | | | | 0.9 | | | | | | | | | | | **0.9** |
| Branntweinzoll | | | | | | | | | | 0.5 | | | | 2.90 | | | | | | | | **3.4** |
| Weinzoll | | | | | | | | | | 0.5 | | | | 13.94 | 6.36 | | | | | 1.6 | | **22.4** |

*Continuation table 4-22:* Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| Production sector | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance | Dwelling | Government | Other services | Domestic services | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 1-40 |
| **Indirect taxes** | | | | | | | | | | | | | | | | | | | | | | **0.0** |
| Schaumwein | | | | | | | | | | | 1.1 | | | | | | | | | | | **1.1** |
| Zucker | | | | | | | | | | | 0.1 | | | | | | | | | | | **0.1** |
| Salz | | | | | | | | | | | 252.9 | | | | | | | | | | | **252.9** |
| Kaffee | | | | | | | | | | | 26.4 | | | | | | | | | | | **26.4** |
| Kakao | | | | | | | | | | | 15.7 | | | | | | | | | | | **15.7** |
| Tee | | | | | | | | | | | | | | | | | | | | | | **0.0** |
| **according to the product groups of the foreign trade statistics** | | | | | | | | | | | | | | | | | | | | | | **29.9** |
| I.A Lebende Tiere | | | | | | | | | 2.8 | | | | | 85.3 | 38.9 | | | | | 10.1 | | **137.1** |
| I. B Nahrungsmittel tierischen Ursprungs | | | | | | | | | 0.4 | | 41.2 | | | 58.8 | | | | | | | | **103.1** |
| I. C Nahrungsmittel pflanzlichen Ursprungs | | | | | | | | | | | 0.1 | | | | | | | | | | | **0.1** |
| I. D Hopfen | 0.8 | | 4.5 | | | | 0.3 | | | | | | | | | | | | | | | **6.1** |
| II.A Rohstoffe | 1.5 | | 0.1 | 2.7 | | | | 15.6 | | | | | | | | | | | | 1.5 | | **54.0** |
| II. B Halbwaren | | | | | | | | | | | | | | 416.5 | | | | | | | | **416.5** |
| darunter Kraftstoffe und Schmieröle | 2.9 | | | 0.7 | | 1.6 | 16.2 | | | | | | | | | | | | | | | **37.0** |
| II.C.1 Vorerzeugnisse Fertigwaren | 1.3 | | | | | | | | | | | | | 6.7 | | | | | | 1.9 | | **16.0** |
| II.C.2 Enderzeugnisse Fertigwaren | **6.5** | **0.0** | **4.6** | **3.4** | **0.0** | **1.6** | **16.5** | **15.6** | **3.2** | **0.9** | **498.1** | **0.0** | **0.0** | **584.2** | **45.3** | **0.0** | **0.0** | **0.0** | **0.0** | **15.1** | **0.0** | **1282.4** |
| **Total customs duties** | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Other transaction taxes** | | | | | | | | | | | | | | | | | | 19.7 | | | | **19.7** |
| Grunderwerb | | | | | | | | | | | 6.0 | 9.0 | | 25.8 | 37.0 | 18.4 | | | | 3.4 | | **122.5** |
| Kraftfahrzeugsteuer | | | | | | | | | | | | | | | | | 60.8 | | | | | **60.8** |
| Versicherungssteuer | | | | | | | | | | | | | | | | | | | | 64.3 | | **64.3** |
| Rennwett- u. Lotterie | | | | | | | | | | | | | | | | | 71.6 | | | | | **71.6** |
| Wechselsteuer | | | | | | | | | | | | | | | | 101.8 | | | | | | **101.8** |
| Personenbeförderung | | | | | | | | | | | | | | | | 123.2 | | | | | | **123.2** |
| Güterbeförderung | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **6.0** | **9.0** | **0.0** | **25.8** | **37.0** | **243.4** | **132.4** | **19.7** | **0.0** | **67.7** | **0.0** | **563.9** |
| **Total of other transaction taxes** | | | | | | | | | | | | | | | | | | | | | | |

*Continuation table 4-22*: Detailed tax matrix (indirect taxes minus subsidies) of Germany in 1936 in m RM

| Production sector | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance | Dwelling | Government | Other services | Domestic services | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indirect taxes** | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | **1-40** |
| **Turnover tax 1936** | **41.4** | **16.9** | **8.3** | **30.0** | **35.0** | **19.7** | **120.8** | **72.9** | **37.6** | **18.9** | **315.0** | **123.2** | **16.4** | **237.9** | **388.3** | **19.9** | **4.4** | | | **154.0** | | **2261.0** |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Federal states' and municipal taxes** | | | | | | | | | | | | | | | | | | | | | | |
| Allgemeine Gewerbesteuer | 20.9 | 8.6 | 3.5 | 7.8 | 13.1 | 13.9 | 52.7 | 19.3 | 11.4 | 5.7 | 95.5 | 56.7 | 23.1 | 50.7 | 32.4 | 66.8 | 11.7 | 24.5 | 0.0 | 25.3 | | **772.1** |
| Gewerbesondersteuern (je 0,5 zu Bau und Großh) | | | | | | | | | | | | 2.7 | | 2.6 | | | | | | | | **5.3** |
| Steuer.. Wandergewerbe | | | | | | | | | | | | | | | | | | | | 5.3 | | **5.3** |
| Zuschlag Grunderwerb | | | | | | | | | | | | | | | | | | 39.2 | | 13.1 | | **52.3** |
| Stempelsteuer | | | | | | | | | | | | | | | | | 17.1 | | | | | **17.1** |
| Gemeindebiersteuer | | | | | | | | | | | 127.9 | | | | | | | | | | | **127.9** |
| Gemeindegetränkesteuer | | | | | | | | | | | 35.5 | | | | | | | | | | | **35.5** |
| Vergnügungssteuer | | | | | | | | | | | | | | | | | | | | 38.5 | | **38.5** |
| Grubenst. Saarland | | | | | | | | | | | | | | | | | | | | | | **2.6** |
| SonsLGst | | | | | | | | | | | | | | | | | | | | 16.3 | | **16.3** |
| **Total of federal states' and municipal taxes** | **20.9** | **8.6** | **3.5** | **7.8** | **13.1** | **13.9** | **52.7** | **19.3** | **11.4** | **5.7** | **258.9** | **59.4** | **23.1** | **53.3** | **32.4** | **66.8** | **28.8** | **63.7** | **0.0** | **98.4** | **0.0** | **1072.9** |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Total indirect taxes** | **68.8** | **56.6** | **16.3** | **41.2** | **50.0** | **35.1** | **190.0** | **107.8** | **351.9** | **30.2** | **2727.0** | **191.6** | **39.5** | **1043.4** | **567.8** | **330.1** | **165.6** | **83.4** | **0.0** | **352.1** | **0.0** | **7477.1** |
| **Subsidies (see government expenditure)** | | | | | | | | | | | | | | | | | | | | | | **-647.0** |
| **Indirect taxes minus subsidies** | **68.8** | **56.6** | **16.3** | **41.2** | **50.0** | **35.1** | **190.0** | **107.8** | **351.9** | **30.2** | **2727.0** | **191.6** | **39.5** | **1043.4** | **567.8** | **330.1** | **165.6** | **83.4** | **0.0** | **352.1** | **0.0** | **6830.1** |

*Sources and note*: Excise duties (StJR, 1938, p. 552), Customs duties (StJR,1938, pp. 552-555), Other transaction taxes (StJR, 1939/40, p. 569), Turnover tax 1936 (StR, 511, I: 21; BA R3102 2700 for agriculture) partly allocated according to the 1935 structure of the turn over statistcs and refined by the 1936 structure of the gross production value, Federal states' and municipal taxes (WS, 1938, pp. 747-750).

*Other transaction taxes*

Information on seven other transaction taxes for the accounting years of 1935/36 and 1936/37 is published in the 1939/40-Statistical Yearbook of Germany. We calculated the figures for the calendar year of 1936 and allocated six taxes to the corresponding sectors (transport and communication, banking & insurance, dwelling, other services). A lack of data on the composition of motor vehicles rendered the attribution of the road tax (Kraftfahrzeugsteuer) to the productive part of the German economy more complicated. Referring to an article of the German Statistical Office on motor traffic in 1938[287] we made an assumption as to the main users of different vehicles. On the basis of these estimates, we attributed the road tax to the respective sectors. For agriculture this procedure was not necessary as a corresponding figure was available from archival records.[288] The sectors to which the road tax and the other transfer taxes were assigned can be seen in Table 4-22.

*Turnover tax*

For 1935, highly detailed statistics on German turnover tax are published.[289] We extrapolated the total amount of turnover taxes for that year (1,893.8 m RM) to the year 1936, which resulted in a value of 2,261.0 m RM. This total figure required a disaggregation according to the 40 sectors of our input-output table. For this end, we used the detailed information on the assessed turnover taxes from the 1935-statistics and calculated the corresponding percentage distribution. Except for agriculture with the corresponding figure from archival records,[290] we applied the percentages to the total 1936-amount (2,261.0 m RM) and obtained the turnover tax pattern shown in Table 4-22.

*Federal states' and municipal taxes*

So far we had taken into account indirect taxes as part of the overall taxes[291] levied in Germany in 1936. Not covered were the tax receipts of federal states and municipalities in Germany which had to be integrated into our input-output table as well. Using the published data on taxes of federal states and municipalities[292] we added ten indirect taxes to our tax matrix. It was possible to allocate most of them directly to the sectors concerned but for the general trade tax (Allgemeine Gewerbesteuer) a distribution key was required. We used the structure of preliminary gross production values as indicator for allocating the general trade tax. The result is presented in Table 4-22.

*Subsidies*

For subsidies,[293] we referred to the *Vierjahresplan* and derived 47 m RM from the regular budget.[294] Oshima's and Budraß' figures concerning military spending for the navy and the air

287 See *WS,* Kraftverkehrswirtschaft.
288 BA R3102 2700, "Die Steuerleistung der Landwirtschaft…", 9.03.1938.
289 *StR* 511, I-III.
290 *WS* 1939, no. 3, special supplement.
291 See *WS* 1938, pp. 586-589.
292 *WS* 1938, pp. 747-750.
293 *Ritschl's* (Deutschlands Krise, Table A.12) figure on subsidies of 310 m RM in 1936 is derived from *Hoffmann et al.* (Wachstum, Table 231). *Hoffmann et al.* (*Ibid.,* pp. 793, 803) do not provide any reliable source for this 1936-figure.
294 *Oshima*, Statistische Materialien, Tables 10, 12, 13, 14.

force turned out to be significantly higher than the output of shipbuilding and the aircraft industry of the production census.[295] We thus assumed subsidies of 300 m RM paid to constructional steel, i.e. shipbuilding, 300 m RM to vehicles and aerospace, i.e. aircraft industry. In order to finalise row 43 of the input-output table, subsidies had to be deducted from indirect taxes.

### 4.7.3. Consumption of fixed capital (depreciation)

Consumption of fixed capital charged as cost of production represents one component of gross value added, or gross domestic product. "It may be defined in general terms as the decline, during the course of the accounting period, in the current value of stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage".[296] The appropriate data for our purpose are based on the same sources which we used for gross fixed capital formation.

*Sources and estimation procedure*

Although the SNA[297] distinguishes between "depreciation" (a concept of business accounts) and "consumption of fixed capital" (a concept of national accounts) the available sources for Germany in 1936 refer to *Abschreibungen* (depreciation) as usual. The StRA, however, went beyond the business concept and distinguished between normal (depreciation) consumption of fixed capital (*Normalabschreibungen*) and total (depreciation) consumption of fixed capital (*Gesamtabschreibungen*). A note by the President of the German Statistical Office to the Minister of Economics of May 1940 emphasised that "figures show that companies had the possibility to realize depreciation which was above the norm".[298] Therefore two confidential tables on industrial consumption of fixed capital in 1936 accompanied the note. Table I covered total values with the overall figure of 2,380 m RM and Table II covered normal values with the overall figure of 1,430 m RM.[299] In order to match the standard of SNA as close as possible we opted for Table I with total consumption of fixed capital. Moreover, this decision complies with our procedure concerning industrial gross fixed capital formation (see chapter 4.5.2).

In order to implement row 44 of the input-output table the data on total consumption of fixed capital was used in its original form, or in the condensed form covering 18 branches of industry. Five aggregated groups, however, had to be split up into 11 branches: heavy industry (consisting of hard coal mining and large-scale iron industry), metal ore mining and non-ferrous metals, total chemical industry and fuel industries, ceramics and glass, fabricated iron and steel products, metal products. For this disaggregation, we drew on the same confidential data on profits and the financial situation of 52 companies in 11 basic and armaments industries 1936-1939[300] used before, for splitting up investments. The respective wage bill of these industries in proportion to the corresponding category of "compensation of employees" in our input-output table was applied to disaggregate the given figures of the group of five into the 11 industrial branches:

295 *Ibid.; Budraß,* Flugzeugindustrie, p. 365.
296 *EC,* SNA 1993, p. 147.
297 *Ibid.,* p. 11.
298 BA R3102 2701, F 40. Translated from German by the authors.
299 *Ibid.,* F49 f.
300 BA R3102 2702, F 254. In the internal document, the 52 companies are also listed by names.

*Heavy industry* (458 m RM): Hard coal mining (302 m RM); Large-scale iron industry (156 m RM) – of which: Basic iron and steel products (125 m RM) and Foundries (31 m RM).

*Metal ore mining and non-ferrous metals* (77 m RM): Metal ore mining (10 m RM) and Non-ferrous metals (67 m RM).

*Total chemical industry and fuel industries* (285 m RM): Total chemical industry (222 m RM) – of which: Chemical industry (197 m RM) and Chemical-technical industry (25 m RM); Fuel industries (63 m RM).

To split up the other two aggregated figures for consumption of fixed assets, the investment relations were used as proxies:

*Ceramics and glass* (33 m RM): Ceramics (17 m RM) and Glass (16 m RM).

*Fabricated iron and steel products and metal products* (61 m RM): Fabricated iron and steel products (38 m RM) and Metal products (23 m RM).

So far, total consumption of fixed assets in *vehicles and aerospace* (101 m RM) had missed out aircraft industry. Referring to the estimated amount of aircraft investment in 1936 (see chapter 4.5.2) and using the above derived relations for depreciation in the vehicle industry as proxy, we assumed an amount of 259 m RM for consumption of fixed assets in the aircraft industry. Adding up we got 360 m RM for consumption of fixed assets in the whole branch of vehicles and aerospace.

After having established data on consumption of fixed capital for the industrial branches 3 to 31 of our input-output table for Germany in 1936 the non-industrial sectors underwent the following procedure:

*Agriculture*: We used the figure relating to normal consumption of fixed capital (750 m RM) estimated by the Statistical Office.[301]

*Forestry, fishing*: The relation between gross fixed capital formation in forestry, fishing and in agriculture formed the basis for estimating the normal consumption of fixed capital (56 m RM).

*Electricity, gas and water*: The published data on gross fixed capital formation and on normal consumption of fixed capital for 1932-1934[302] made it possible to calculate an average depreciation ratio of 88%. We multiplied this ratio by gross fixed capital formation of electricity, gas and water in 1936 (436 m RM) and arrived at the amount of 384 m RM for normal consumption of fixed capital.

*Wholesale trade and retail trade*: The figures on normal consumption of fixed capital were calculated together with the total intermediate input based on data for 1933.[303]

*Transport and communication*: As for wholesale trade and retail trade, depreciation was derived from the input structure in 1933 and calculated together with the other input items.[304] Motorways (*Autobahnen*) are not covered.

301 This figure is included in the archival record BA R3102 2701, F13.
302 See *Länderrat,* StH1949, p. 604.
303 BA R3102 2705 F 147, back side of the sheet; see chapter 4.3.1.

*Banking & insurance*: The required depreciation ratio (56%) was calculated by combining corresponding figures on consumption of fixed capital in the DIW input-output table 1954 with gross fixed capital formation in the DIW investment matrix of 1950. We applied the estimated ratio to the investment figure of banking and insurance in 1936 (87 m RM) and obtained 49 m RM for normal consumption of fixed capital.

*Dwelling*: We used the figure for normal consumption of fixed capital (1,260 m RM) included in an unpublished article of the Statistical Office.[305]

*Government*: The normal consumption of fixed capital for public administration (600 m RM) was estimated by multiplying the depreciation ratio for 1934 (24%)[306] by gross fixed capital formation of government in the investment matrix of 1936 (2,500 m RM).

*Other services*: We used the same procedure as for banking & insurance. On the basis of DIW matrices of 1950/1954 we estimated a depreciation ratio of 74%. The subsequent multiplication by the relevant investment figure (215 m RM) resulted in a normal consumption of fixed capital for other services in 1936. All particular figures on consumption of fixed capital as well as the total amount of 6,767.4 m RM are shown in row 44 of the input-output table for Germany in 1936.

### 4.7.4. Mixed income/operating surplus

This item is the residual between gross production and inputs (Table 2-1: row 1-41 of quadrant I) together with the other components of quadrant III (Table 2-1: row 42-44). We arrived at a higher profit share in GDP than any hitherto presented national accounts for 1936. One should keep in mind, however, that we corrected the upward bias of the production census by imputing "overheads" as additional costs not recorded by the census itself. In addition, we opted for rather a high depreciation or consumption of fixed capital. Both procedures tend to lower value added and the profitability of private enterprises in our production accounts.

## 5. Finalization of the input-output table for Germany in 1936

The documentation started with a description of the conceptual background of our input-output table for Germany in 1936 by presenting frame, classification and connection with national accounts. Then the compilation problems and the data sources were documented in detail distinguishing between the various components of quadrants I, II and III. Thus the intermediate inputs of branches, the final demand categories and the primary inputs (GDP components and imports) were dealt with. Many of the presented results were first valued at purchasers' prices which had to be converted to producers' prices. Those rows and columns of the preliminary input-output table which were not consistent with each other required a final balancing. These two activities were necessary to finalize the input-output table for Germany in 1936.

304 BA R3102 2705 F 169 - F 194; see chapter 4.3.2.
305 BA R3102 2701, F 58.
306 See *Länderrat,* StH1949, p. 604.

### 5.1. Conversion from purchasers' prices to producers' prices

The conversion of private consumption and of gross fixed capital formation from purchasers' prices to producers' prices is elucidated in chapters 4.5.1 and 4.5.2. We pursued the same procedure for the intermediate inputs of the input-output table, i.e. for the columns 1 to 40 with respect to the commodity suppliers in rows 1 to 30. The following synopsis describes our proceeding step by step:

| **(1)** | **Quadrant I of the preliminary input-output table for Germany in 1936 at purchasers' prices** |
|---|---|
| (2) | Assumptions on payments to wholesale trade<br>(percentages of intermediate outputs, by row) |
| (3) = (1) x (2) | Payments to wholesale trade (charges), cell by cell |
| (4) = (1) - (3) | Quadrant I of the preliminary input-output table with<br>deducted wholesale trade charges and their transfer to wholesale trade |
| (5) | Assumptions on payments to transportation<br>(percentages of intermediate outputs, by row) |
| (6) = (1) x (5) | Payments to transportation (transport costs), cell by cell |
| (7) = (1) - (6) | Quadrant I of the preliminary input-output table with<br>deducted transport costs and their transfer to transportation and communication |
| (8) = (1) - (3) - (6) | Quadrant I of the preliminary input-output table with<br>deducted wholesale trade charges and transport costs as<br>well as with their transfer to wholesale trade and transport and communication |
| **(9)** | **Quadrant I of the preliminary input-output table for Germany in 1936 at producers' prices** |

Based on the industrial census of 1933, the Statistical Office compiled separate input-output figures for each branch of industry.[307] This voluminous file is part of the planned, but never finished, input-output table for Germany in 1933. Obviously, however, not all of the work sheets survived in the records of the Federal Archive (BA). The tables comprise detailed figures on wholesale trade charges and transport costs as well. The payments of the sectors to wholesale and transportation were calculated as percentages of intermediate outputs.[308] From all this information, the StRA calculated a summary account of these wholesale trade charges and transport costs. We decided to use the 1933-percentages of intermediate outputs for our input-output table for 1936.

Drawing on the summary table, we calculated the costs of wholesale services by assuming the same percentage for all purchasers of intermediate goods row by row (see column 1 in Table 5-1). Only for mining output and iron and steel deliveries, an exception of the general assumption was necessary. Here we applied two different percentages depending on the size of the customers, i.e. large or small purchasers (see the footnote in Table 5-1). Multiplying the assumed percentages row-wise by the figures in quadrant I of the preliminary input-output table at purchasers' prices, resulted in a so-called wholesale matrix (Table 5.2). We deducted the elements of the wholesale matrix cell by cell from quadrant I of the preliminary input-output table and transferred the column totals of the deducted elements to row 33 in the input-output table. See step (4) in the introductory synopsis and column 3 in Table 5-1**.**

307 BA R3102 2580a.

308 Another archival record (BA R3102 2705, F 286 and 287) contains as well two tables on wholesale and retail trade margins for brand-name articles and consumer goods in 1935.

*Table 5-1*: Costs of wholesale and transportation services

| | | Payments to | | Total inputs from | |
|---|---|---|---|---|---|
| | | Wholesale trade | Transportation | Wholesale trade | Transportation |
| | | as % of intermediate outputs | | in m RM | |
| | | (1) | (2) | (3) | (4) |
| 1 | Agriculture | 6.0 | 5.0 | 107.5 | 102.9 |
| 2 | Forestry, fishery | 8.0 | 6.0 | 13.8 | 10.8 |
| 3 | Mining | 5.0* | 5.0 | 32.1 | 34.5 |
| 4 | Fuel industries | 5.0* | 5.0 | 12.6 | 19.1 |
| 5 | Basic iron and steel products | 5.0* | 5.0 | 83.9 | 84.9 |
| 6 | Non-ferrous metals | 5.0* | 5.0 | 36.5 | 20.8 |
| 7 | Foundries | 5.0* | 5.0 | 16.8 | 12.4 |
| 8 | Fabricated iron and steel products | 6.0 | 8.0 | 60.9 | 34.0 |
| 9 | Machinery | 6.0 | 4.0 | 67.2 | 34.3 |
| 10 | Constructional steel | 9.0 | 5.0 | 26.6 | 19.1 |
| 11 | Vehicles and aerospace | 9.0 | 10.0 | 76.1 | 49.1 |
| 12 | Electrical engineering | 2.0 | 10.0 | 37.6 | 34.4 |
| 13 | Precision engineering, optics | 8.0 | 5.0 | 7.7 | 6.4 |
| 14 | Metal products | 8.0 | 7.0 | 24.8 | 17.1 |
| 15 | Stone and quarrying | 6.0 | 6.0 | 11.6 | 8.8 |
| 16 | Ceramics | 7.0 | 8.0 | 3.0 | 3.3 |
| 17 | Glass | 7.0 | 8.0 | 5.0 | 4.4 |
| 18 | Saw mills, timber processing | 6.0 | 5.0 | 30.6 | 11.8 |
| 19 | Manufactured wood products | 1.0 | 7.0 | 47.1 | 35.7 |
| 20 | Chemical industry | 8.0 | 7.0 | 68.7 | 54.1 |
| 21 | Chemical-technical industry | 8.0 | 7.0 | 26.9 | 23.7 |
| 22 | Rubber and asbestos manufacture | 6.0 | 10.0 | 6.2 | 7.9 |
| 23 | Manufacture of paper and paper products | 5.0 | 7.0 | 20.8 | 16.3 |
| 24 | Printing and duplicating | 6.0 | 8.0 | 35.7 | 26.9 |
| 25 | Leather industry | 6.0 | 8.0 | 44.7 | 39.5 |
| 26 | Textiles | 4.0 | 7.0 | 137.3 | 154.3 |
| 27 | Clothing | 9.0 | 7.0 | 42.5 | 51.7 |
| 28 | Edible oil and fats | 5.0 | 7.0 | 35.6 | 25.1 |
| 29 | Spirits industry | 5.0 | 7.0 | 31.4 | 20.4 |
| 30 | Food, beverages and tobacco | 6.0 | 7.0 | 372.1 | 216.0 |
| 31 | Building and construction | | | 125.6 | 71.5 |
| 32 | Electricity, gas and water | | | 35.1 | 32.8 |
| 33 | Wholesale trade | | | 11.3 | 13.8 |
| 34 | Retail trade | | | 13.0 | 15.7 |
| 35 | Transport and communication | | | 74.8 | 56.9 |
| 36 | Banking and insurance | | | 7.4 | 0.0 |
| 37 | Dwelling | | | 19.0 | 27.8 |
| 38 | Government[xx] | | | 517.0 | 412.9 |
| 39 | Other services | | | 133.9 | 107.3 |
| **1-39** | **Total** | | | **2460.4** | **1918.8** |

*Notes*: * For small companies 5 % and for large companies 2 % are assumed.
[xx] Wholesale trade: includes 112.9 m RM balancing items;
transportation: includes 177.7 m RM balancing items.

*Source*: BA R3102 2580a.

*Table 5-2:* Wholesale matrix of Germany (wholesale charges in m RM)

| | | **Wholesale charges** | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Agriculture | | 10.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Forestry, fishery | | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.0 |
| 3 | Mining | | 1.9 | 0.2 | 16.2 | 2.5 | 5.8 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| 4 | Fuel industries | | 4.2 | 0.9 | 0.0 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 |
| 5 | Basic iron and steel products | | 0.0 | 0.0 | 2.0 | 0.0 | 43.0 | 0.1 | 6.7 | 47.9 | 22.5 | 14.3 | 9.2 | 3.7 | 0.4 | 2.5 | 0.1 | 0.0 | 0.0 | 0.0 |
| 6 | Non-ferrous metals | | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 30.5 | 4.9 | 4.0 | 6.3 | 0.5 | 4.4 | 9.6 | 1.2 | 15.9 | 0.0 | 0.1 | 0.0 | 0.0 |
| 7 | Foundries | | 0.0 | 0.0 | 0.9 | 0.0 | 0.6 | 0.0 | 3.9 | 3.0 | 15.1 | 1.8 | 6.0 | 2.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8 | Fabricated iron and steel products | | 3.2 | 2.6 | 0.9 | 0.2 | 8.4 | 0.0 | 0.0 | 1.6 | 4.3 | 3.6 | 15.7 | 1.8 | 0.3 | 0.5 | 0.0 | 0.0 | 0.3 | 0.0 |
| 9 | Machinery | | 8.6 | 1.1 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 13.3 | 2.1 | 7.8 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | Constructional steel | | 0.5 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11 | Vehicles and aerospace | | 1.8 | 1.6 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 15.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12 | Electrical engineering | | 0.5 | 0.0 | 0.1 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 1.6 | 0.4 | 1.5 | 3.9 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13 | Precision engineering, optics | | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 3.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 14 | Metal products | | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 | 1.7 | 0.3 | 0.0 | 0.0 |
| 15 | Stone and quarrying | | 1.8 | 0.0 | 0.1 | 0.1 | 14.5 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 | 7.9 | 1.7 | 0.7 | 0.0 |
| 16 | Ceramics | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17 | Glass | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 0.5 | 0.4 | 0.6 | 0.0 | 0.0 | 1.5 | 0.0 |
| 18 | Saw mills, timber processing | | 0.0 | 0.0 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.4 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 2.3 |
| 19 | Manufactured wood products | | 1.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 20 | Chemical industry | | 48.2 | 3.0 | 4.9 | 0.9 | 0.7 | 2.2 | 0.4 | 1.2 | 0.3 | 0.8 | 0.5 | 2.1 | 0.1 | 1.8 | 0.8 | 0.3 | 2.1 | 0.1 |
| 21 | Chemical-technical industry | | 4.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.6 | 3.1 | 7.2 | 0.3 | 0.2 | 0.1 | 0.3 | 0.0 | 0.0 |
| 22 | Rubber and asbestos manufacture | | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 5.1 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| 23 | Manufacture of paper and paper products | | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| 24 | Printing and duplicating | | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.4 | 0.0 | 0.0 | 0.5 | 0.1 | 0.4 | 0.5 | 0.3 | 0.0 | 0.0 |
| 25 | Leather industry | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.4 | 0.0 | 0.5 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 26 | Textiles | | 0.0 | 0.2 | 0.2 | 0.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 1.1 | 0.8 | 0.1 | 0.6 | 0.1 | 0.1 | 0.2 | 0.0 |
| 27 | Clothing | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 28 | Edible oil and fats | | 8.9 | 0.3 | 0.0 | 0.2 | 0.0 | 0.0 | 0.1 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 29 | Spirits industry | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | | 10.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1-40 | **Wholesale charges** | | **107.5** | **13.8** | **32.1** | **12.6** | **83.9** | **36.5** | **16.8** | **60.9** | **67.2** | **26.6** | **76.1** | **37.6** | **7.7** | **24.8** | **11.6** | **3.0** | **5.0** | **30.6** |

*Continuation table 5-2:* Wholesale matrix of Germany (wholesale charges in m RM)

| | **Wholesale charges** | Saw mills, timber processing | Manufactured wood products | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 1 | Agriculture | 0.0 | 1.4 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 8.0 | 4.5 | 0.4 | 7.3 | 4.8 | 237.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| 2 | Forestry, fishery | 28.0 | 7.1 | 0.0 | 0.2 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | Mining | 0.0 | 0.1 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 11.8 | 0.2 | 0.3 | 7.3 | 0.4 |
| 4 | Fuel industries | 0.3 | 0.0 | 0.7 | 2.4 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 4.3 | 0.2 | 2.4 | 10.2 | 0.2 |
| 5 | Basic iron and steel products | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 0.0 | 0.2 | 0.0 | 1.3 | 0.0 |
| 6 | Non-ferrous metals | 0.0 | 0.1 | 0.6 | 0.1 | 0.1 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| 7 | Foundries | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 |
| 8 | Fabricated iron and steel products | 0.0 | 3.6 | 0.9 | 0.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 5.9 | 6.0 | 0.0 | 0.1 | 0.2 | 2.6 | 0.0 |
| 9 | Machinery | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 3.6 | 1.1 | 0.6 | 3.8 | 0.8 |
| 10 | Constructional steel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 4.5 | 0.0 | 0.2 | 3.2 | 0.0 |
| 11 | Vehicles and aerospace | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 1.6 | 2.2 | 20.1 | 0.4 |
| 12 | Electrical engineering | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.4 | 0.1 | 0.1 | 1.2 | 0.1 |
| 13 | Precision engineering, optics | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 |
| 14 | Metal products | 0.0 | 1.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.5 | 1.1 | 0.2 | 0.3 | 0.0 | 0.0 | 1.2 | 8.0 | 2.4 | 0.2 | 0.1 | 1.2 | 0.6 |
| 15 | Store and quarrying | 0.0 | 0.0 | 2.4 | 0.4 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.5 | 63.5 | 0.0 | 0.5 | 0.0 | 2.0 | 0.0 |
| 16 | Ceramics | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17 | Glass | 0.0 | 2.3 | 0.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 |
| 18 | Saw mills, timber processing | 2.3 | 19.4 | 0.0 | 0.0 | 0.0 | 3.1 | 0.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.3 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 |
| 19 | Manufactured wood products | 0.0 | 1.1 | 0.2 | 0.3 | 0.0 | 0.1 | 0.1 | 0.1 | 0.3 | 0.4 | 0.1 | 0.0 | 1.2 | 0.7 | 0.5 | 0.0 | 0.1 | 0.0 | 0.1 |
| 20 | Chemical industry | 0.1 | 3.0 | 49.9 | 10.4 | 1.6 | 2.1 | 3.6 | 1.8 | 18.2 | 0.2 | 1.0 | 1.5 | 1.3 | 0.0 | 0.5 | 3.3 | 0.3 | 1.3 | 0.6 |
| 21 | Chemical-technical industry | 0.0 | 4.2 | 4.4 | 4.2 | 0.1 | 0.4 | 0.6 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.6 | 0.0 | 0.1 | 0.0 | 0.0 |
| 22 | Rubber and asbestos manufacture | 0.0 | 0.0 | 0.1 | 0.1 | 0.8 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.3 | 0.3 | 14.6 | 0.0 |
| 23 | Manufacture of paper and paper products | 0.0 | 0.5 | 0.1 | 1.2 | 0.1 | 12.1 | 23.5 | 0.3 | 2.4 | 0.0 | 0.4 | 0.3 | 5.4 | 0.0 | 0.0 | 0.9 | 1.9 | 0.1 | 0.9 |
| 24 | Printing and duplicating | 0.0 | 0.0 | 1.4 | 0.2 | 0.0 | 0.0 | 5.9 | 0.0 | 0.8 | 0.4 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.4 | 0.9 | 1.3 | 2.6 |
| 25 | Leather industry | 0.0 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.2 | 25.6 | 0.5 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 |
| 26 | Textiles | 0.0 | 1.4 | 1.2 | 0.7 | 2.4 | 1.3 | 0.4 | 2.3 | 110.0 | 36.8 | 0.3 | 0.0 | 4.2 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 0.2 |
| 27 | Clothing | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.8 | 0.0 | 0.0 |
| 28 | Edible oil and fats | 0.0 | 0.7 | 0.4 | 3.4 | 0.1 | 0.0 | 0.3 | 0.8 | 0.5 | 0.0 | 20.9 | 0.0 | 2.1 | 0.0 | 0.0 | 0.2 | 0.5 | 0.0 | 0.0 |
| 29 | Spirits industry | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | 0.0 | 0.5 | 1.5 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 2.2 | 104.2 | 0.0 | 0.0 | 1.0 | 1.3 | 1.0 | 0.4 |
| 1-40 | **Wholesale charges** | 30.6 | 47.1 | 68.7 | 26.9 | 6.2 | 20.8 | 35.7 | 44.7 | 137.3 | 42.5 | 35.6 | 31.4 | 372.1 | 125.6 | 35.1 | 11.3 | 13.0 | 74.8 | 7.4 |

*Continuation table 5-2:* Wholesale matrix of Germany (wholesale charges in m RM)

| | | Dwelling | Government | Other services | **Domestic intermediate outputs** | Private consumption | Gross fixed capital formation | Exports | Final output | Gross production | Wholesale charges | Gross production minus wholesale charges |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 37 | 38 | 39 | 1-40 | 41 | 44 | 46 | 41-46 | 47 | (1-40)+(41-46) | GP(v)-GP(f) |
| 1 | Agriculture | 1.1 | 23.3 | 6.1 | **306.1** | 421.2 | | 0.0 | **421.2** | 11981.0 | **727.3** | **11253.7** |
| 2 | Forestry, fishery | 0.0 | 0.8 | 1.2 | **45.2** | 20.0 | | 0.0 | **20.0** | 901.0 | **65.2** | **835.8** |
| 3 | Mining | 1.3 | 1.6 | 1.8 | **57.4** | 43.5 | | 0.0 | **43.5** | 3522.5 | **100.9** | **3521.5** |
| 4 | Fuel industries | 0.2 | 0.6 | 1.7 | **36.7** | 4.0 | | 0.0 | **4.0** | 936.6 | **40.7** | **895.8** |
| 5 | Basic iron and steel products | 0.0 | 0.1 | 0.0 | **167.4** | 0.0 | | 0.0 | **0.0** | 4991.9 | **167.4** | **4824.4** |
| 6 | Non-ferrous metals | 0.0 | 0.0 | 0.1 | **79.3** | 0.0 | | 0.0 | **0.0** | 1778.2 | **79.3** | **1698.9** |
| 7 | Foundries | 0.0 | 0.0 | 0.0 | **34.1** | 0.0 | | 0.0 | **0.0** | 1106.2 | **34.1** | **1072.0** |
| 8 | Fabricated iron and steel products | 0.0 | 9.6 | 0.0 | **73.3** | 0.0 | 18.4 | 0.0 | **18.4** | 3148.9 | **91.7** | **3057.2** |
| 9 | Machinery | 1.5 | 49.8 | 1.6 | **106.7** | 4.8 | 136.6 | 0.0 | **141.4** | 4049.4 | **248.1** | **3801.3** |
| 10 | Constructional steel | 0.0 | 65.3 | 0.0 | **95.2** | 0.0 | 53.6 | 0.0 | **53.6** | 1203.5 | **148.8** | **1054.7** |
| 11 | Vehicles and aerospace | 0.0 | 110.6 | 5.2 | **163.6** | 86.4 | 66.6 | 0.0 | **153.0** | 3034.2 | **316.6** | **2717.6** |
| 12 | Electrical engineering | 0.7 | 5.3 | 0.9 | **18.8** | 1.4 | 20.3 | 0.0 | **21.7** | 2315.2 | **40.5** | **2274.7** |
| 13 | Precision engineering, optics | 0.0 | 7.9 | 0.8 | **17.1** | 2.4 | 14.2 | 0.0 | **16.6** | 578.4 | **33.7** | **544.7** |
| 14 | Metal products | 3.1 | 28.3 | 2.5 | **56.5** | 64.0 | 13.2 | 0.0 | **77.2** | 1408.7 | **133.7** | **1275.1** |
| 15 | Stone and quarrying | 0.2 | 1.3 | 0.0 | **99.7** | 0.6 | | 0.0 | **0.6** | 1737.7 | **100.3** | **1637.4** |
| 16 | Ceramics | 3.9 | 0.4 | 1.9 | **10.2** | 10.5 | | 0.0 | **10.5** | 342.3 | **20.7** | **321.6** |
| 17 | Glass | 0.7 | 0.5 | 3.7 | **16.2** | 7.0 | | 0.0 | **7.0** | 354.2 | **23.2** | **331.0** |
| 18 | Saw mills, timber processing | 2.9 | 0.0 | 1.1 | **51.6** | 6.0 | | 0.0 | **6.0** | 891.1 | **57.6** | **833.6** |
| 19 | Manufactured wood products | 1.2 | 1.1 | 0.1 | **9.8** | 12.9 | 2.6 | 0.0 | **15.5** | 2594.0 | **25.3** | **2568.7** |
| 20 | Chemical industry | 0.2 | 20.8 | 9.7 | **201.5** | 32.0 | | 0.0 | **32.0** | 3119.3 | **233.5** | **2885.8** |
| 21 | Chemical-technical industry | 0.2 | 20.2 | 0.0 | **57.2** | 54.4 | | 0.0 | **54.4** | 1277.4 | **111.6** | **1165.7** |
| 22 | Rubber and asbestos manufacture | 0.0 | 2.7 | 2.1 | **31.6** | 12.0 | | 0.0 | **12.0** | 517.3 | **43.6** | **473.7** |
| 23 | Manufacture of paper and paper products | 0.1 | 3.4 | 3.8 | **59.0** | 1.5 | | 0.0 | **1.5** | 1156.4 | **60.5** | **1095.9** |
| 24 | Printing and duplicating | 0.8 | 4.2 | 7.2 | **30.3** | 54.0 | | 0.0 | **54.0** | 1957.1 | **84.3** | **1872.8** |
| 25 | Leather industry | 0.0 | 1.2 | 1.7 | **32.1** | 82.2 | | 0.0 | **82.2** | 2066.8 | **114.3** | **1952.5** |
| 26 | Textiles | 0.0 | 2.5 | 3.3 | **171.6** | 120.4 | | 0.0 | **120.4** | 7858.1 | **292.0** | **7566.0** |
| 27 | Clothing | 0.5 | 19.2 | 0.7 | **24.8** | 234.0 | | 0.0 | **234.0** | 2883.0 | **258.8** | **2624.2** |
| 28 | Edible oil and fats | 0.0 | 0.0 | 2.3 | **43.8** | 40.0 | | 0.0 | **40.0** | 1702.7 | **83.8** | **1618.9** |
| 29 | Spirits industry | 0.0 | 0.0 | 8.7 | **32.3** | 5.0 | | 0.0 | **5.0** | 853.4 | **37.3** | **816.0** |
| 30 | Food, beverages and tobacco | 0.6 | 23.4 | 65.6 | **218.3** | 651.0 | | 0.0 | **651.0** | 14249.3 | **869.3** | **13380.0** |
| 1-40 | **Wholesale charges** | **19.0** | **404.1** | **133.9** | **2347.6** | **1971.2** | **325.5** | **0.0** | **2296.7** | **169027.6** | **4644.2** | **164383.3** |

*Source*: see text.

*Table 5-3*: Transportation matrix of Germany (Transport costs in m RM)

| | | **Transport costs** | Agriculture | Forestry, fishery | Mining | Fuel industries | Basic iron and steel products | Non-ferrous metals | Foundries | Fabricated iron and steel products | Machinery | Constructional steel | Vehicles and aerospace | Electrical engineering | Precision engineering, optics | Metal products | Stone and quarrying | Ceramics | Glass | Saw mills, timber processing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Agriculture | | 1.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Forestry, fishery | | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.5 |
| 3 | Mining | | 1.2 | 0.2 | 20.2 | 6.3 | 7.3 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 4 | Fuel industries | | 4.2 | 0.9 | 0.0 | 9.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.3 |
| 5 | Basic iron and steel products | | 0.0 | 0.0 | 2.5 | 0.0 | 53.7 | 0.1 | 6.7 | 23.9 | 11.2 | 7.1 | 4.6 | 1.8 | 0.4 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 |
| 6 | Nor-ferrous metals | | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 15.2 | 2.5 | 2.0 | 3.2 | 0.5 | 2.2 | 4.8 | 1.2 | 8.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| 7 | Foundries | | 0.0 | 0.0 | 2.4 | 0.0 | 1.6 | 0.0 | 1.9 | 1.5 | 3.0 | 1.8 | 3.0 | 2.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8 | Fabricated iron and steel products | | 2.7 | 3.5 | 1.2 | 0.2 | 5.6 | 0.0 | 0.0 | 1.1 | 2.8 | 2.4 | 10.5 | 2.4 | 0.4 | 0.7 | 0.0 | 0.0 | 0.4 | 0.0 |
| 9 | Machinery | | 11.5 | 0.7 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 4.4 | 1.4 | 2.6 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | Corstructional steel | | 0.2 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11 | Vehicles and aerospace | | 1.0 | 1.8 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12 | Electrical engineering | | 2.5 | 0.0 | 0.4 | 0.0 | 1.1 | 1.3 | 0.0 | 0.0 | 4.1 | 1.9 | 3.9 | 9.8 | 0.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13 | Precision engineering, optics | | 0.5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 14 | Metal products | | 0.4 | 0.0 | 0.0 | 0.0 | 0.5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 1.5 | 0.2 | 0.0 | 0.0 |
| 15 | Stone and quarrying | | 2.1 | 0.0 | 0.1 | 0.1 | 7.2 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 | 4.0 | 1.7 | 0.7 | 0.0 |
| 16 | Ceramics | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 |
| 17 | Glass | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 0.5 | 0.5 | 0.7 | 0.0 | 0.0 | 0.9 | 0.0 |
| 18 | Saw mills, timber processing | | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 1.0 |
| 19 | Manufactured wood products | | 5.7 | 0.4 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.9 | 0.5 | 0.0 | 0.2 | 0.5 | 0.3 | 0.9 | 0.7 | 0.2 | 0.0 | 0.0 |
| 20 | Chemical industry | | 42.1 | 1.3 | 4.3 | 0.8 | 0.6 | 1.9 | 0.4 | 1.0 | 0.3 | 0.7 | 0.5 | 1.8 | 0.1 | 1.6 | 0.7 | 0.2 | 1.8 | 0.0 |
| 21 | Chemical-technical industry | | 1.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 0.5 | 2.7 | 3.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 |
| 22 | Rubber and asbestos manufacture | | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.1 | 4.2 | 1.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 |
| 23 | Manufacture of paper and paper products | | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 |
| 24 | Printing and duplicating | | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.6 | 0.0 | 0.0 | 0.7 | 0.1 | 0.5 | 0.6 | 0.3 | 0.0 | 0.0 |
| 25 | Leather industry | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 0.7 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 26 | Textiles | | 0.0 | 0.3 | 0.3 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 1.9 | 1.4 | 0.2 | 1.0 | 0.1 | 0.2 | 0.3 | 0.0 |
| 27 | Clothing | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 28 | Edible oil and fats | | 12.5 | 0.4 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 | 1.5 | 0.7 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 29 | Spirits industry | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | | 12.5 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1-40 | **Transport costs** | | **102.9** | **10.8** | **34.5** | **19.1** | **84.9** | **20.8** | **12.4** | **34.0** | **34.3** | **19.1** | **49.1** | **34.4** | **6.4** | **17.1** | **8.8** | **3.3** | **4.4** | **11.8** |

*Continuation table 5-3:* Transportation matrix of Germany (Transport costs in m RM)

| | | Transport costs | Manufactured wood products | Chemical industry | Chemical-technical industry | Rubber and asbestos manufacture | Manufacture of paper and paper products | Printing and duplicating | Leather industry | Textiles | Clothing | Edible oil and fats | Spirits industry | Food, beverages and tobacco | Building and construction | Electricity, gas and water | Wholesale trade | Retail trade | Transport and communication | Banking and insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 1 | Agriculture | | 1.1 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 6.6 | 3.7 | 0.3 | 3.1 | 0.8 | 98.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Forestry, fishery | | 5.3 | 0.0 | 0.2 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | Mining | | 0.1 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 5.9 | 0.4 | 0.3 | 3.6 | 0.0 |
| 4 | Fuel industries | | 0.0 | 0.8 | 1.2 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 5.3 | 0.4 | 2.4 | 5.1 | 0.0 |
| 5 | Basic iron and steel products | | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 0.0 | 0.6 | 0.0 | 3.2 | 0.0 |
| 6 | Non-ferrous metals | | 0.1 | 1.6 | 0.1 | 0.1 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.0 |
| 7 | Fourdries | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.0 |
| 8 | Fabricated iron and steel products | | 4.8 | 1.2 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 7.8 | 4.0 | 0.0 | 0.1 | 0.3 | 3.5 | 0.0 |
| 9 | Machinery | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 2.4 | 0.7 | 0.4 | 2.5 | 0.0 |
| 10 | Constructional steel | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 2.5 | 0.0 | 0.1 | 1.8 | 0.0 |
| 11 | Vehicles and aerospace | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.7 | 2.5 | 11.2 | 0.0 |
| 12 | Electrical engineering | | 0.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 2.0 | 0.6 | 0.5 | 3.0 | 0.0 |
| 13 | Precision engineering, optics | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 |
| 14 | Metal products | | 1.2 | 0.1 | 0.4 | 0.1 | 0.3 | 0.4 | 1.0 | 0.2 | 0.3 | 0.0 | 0.0 | 1.1 | 7.0 | 2.1 | 0.2 | 0.1 | 1.1 | 0.0 |
| 15 | Stone and quarrying | | 0.0 | 2.4 | 0.4 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.5 | 31.7 | 0.0 | 0.5 | 0.0 | 2.0 | 0.0 |
| 16 | Ceramics | | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17 | Glass | | 1.3 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 |
| 18 | Saw mills, timber processing | | 8.1 | 0.0 | 0.0 | 0.0 | 1.3 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 4.7 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 |
| 19 | Manufactured wood products | | 3.9 | 0.8 | 1.0 | 0.1 | 0.5 | 0.4 | 0.6 | 1.1 | 2.5 | 0.9 | 0.0 | 4.1 | 2.4 | 3.5 | 0.3 | 0.4 | 0.3 | 0.0 |
| 20 | Chemical industry | | 2.6 | 31.2 | 6.5 | 1.4 | 1.9 | 3.2 | 1.6 | 8.0 | 0.2 | 0.9 | 1.3 | 1.1 | 0.0 | 0.5 | 2.9 | 0.2 | 1.1 | 0.0 |
| 21 | Chemical-technical industry | | 1.8 | 2.7 | 2.6 | 0.1 | 0.4 | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 1.4 | 0.0 | 0.1 | 0.0 | 0.0 |
| 22 | Rubber and asbestos manufacture | | 0.0 | 0.2 | 0.1 | 0.7 | 0.0 | 0.1 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.4 | 0.6 | 12.1 | 0.0 |
| 23 | Manufacture of paper and paper products | | 0.7 | 0.1 | 1.7 | 0.1 | 8.5 | 16.4 | 0.4 | 1.7 | 0.0 | 0.6 | 0.4 | 3.8 | 0.0 | 0.0 | 1.3 | 2.6 | 0.1 | 0.0 |
| 24 | Printing and duplicating | | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 | 4.0 | 0.0 | 1.0 | 0.6 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.6 | 1.2 | 1.8 | 0.0 |
| 25 | Leather industry | | 0.3 | 0.0 | 0.1 | 0.2 | 0.0 | 0.3 | 21.3 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 |
| 26 | Textiles | | 2.5 | 2.1 | 1.2 | 4.2 | 2.2 | 0.6 | 4.0 | 137.4 | 45.9 | 0.4 | 0.0 | 3.7 | 0.0 | 0.0 | 0.9 | 1.0 | 0.0 | 0.0 |
| 27 | Clothing | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.6 | 0.0 | 0.0 |
| 28 | Edible oil and fats | | 1.0 | 0.6 | 4.7 | 0.1 | 0.1 | 0.4 | 1.2 | 0.7 | 0.0 | 14.6 | 0.0 | 1.5 | 0.0 | 0.0 | 0.3 | 0.7 | 0.0 | 0.0 |
| 29 | Spirits industry | | 0.0 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 30 | Food, beverages and tobacco | | 0.6 | 1.7 | 0.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 1.8 | 86.8 | 0.0 | 0.0 | 1.2 | 1.5 | 1.1 | 0.0 |
| 1-40 | **Transport costs** | | **35.7** | **54.1** | **23.7** | **7.9** | **16.3** | **26.9** | **39.5** | **154.3** | **51.7** | **25.1** | **20.4** | **216.0** | **71.5** | **32.8** | **13.8** | **15.7** | **56.9** | **0.0** |

*Continuation table 5-3:* Transportation matrix of Germany (Transport costs in m RM)

| | Transport costs | Dwelling | Government | Other services | Domestic intermediate outputs | Private consumption | Gross fixed capital formation | Exports | Final output | Gross production | Transport costs | Gross production minus transport costs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | | 37 | 38 | 39 | 1-40 | 41 | 44 | 46 | 41-46 | 47 | (1-40)+(41-46) | GP(v)-GP(f) |
| 1 | Agriculture | 0.0 | 19.4 | 5.1 | **141.6** | 70.2 | | 2.5 | **72.7** | 11981.0 | **214.3** | **11766.7** |
| 2 | Forestry, fishery | 0.0 | 0.6 | 0.9 | **21.6** | 15.0 | | 0.3 | **15.3** | 901.0 | **36.9** | **864.1** |
| 3 | Mining | 1.3 | 3.9 | 1.8 | **58.2** | 43.5 | | 11.4 | **54.9** | 3622.5 | **113.1** | **3509.4** |
| 4 | Fuel industries | 0.2 | 0.8 | 1.7 | **33.9** | 4.0 | | 0.9 | **4.9** | 936.6 | **38.8** | **897.8** |
| 5 | Basic iron and steel products | 0.0 | 0.1 | 0.0 | **126.6** | 0.0 | | 6.3 | **6.3** | 4991.9 | **132.9** | **4859.0** |
| 6 | Non-ferrous metals | 0.0 | 0.1 | 0.1 | **43.0** | 0.0 | | 3.4 | **3.4** | 1778.2 | **46.4** | **1731.7** |
| 7 | Foundries | 0.0 | 0.0 | 0.0 | **18.2** | 0.0 | | 1.0 | **1.0** | 1106.2 | **19.3** | **1086.9** |
| 8 | Fabricated iron and steel products | 0.0 | 6.4 | 0.0 | **63.4** | 0.0 | 12.2 | 15.6 | **27.9** | 3148.9 | **91.3** | **3057.6** |
| 9 | Machinery | 1.0 | 16.6 | 1.1 | **52.7** | 6.4 | 45.5 | 27.1 | **79.0** | 4049.4 | **131.7** | **3917.8** |
| 10 | Constructional steel | 0.0 | 36.3 | 0.0 | **52.8** | 0.0 | 29.8 | 5.9 | **35.7** | 1203.5 | **88.5** | **1115.0** |
| 11 | Vehicles and aerospace | 0.0 | 61.4 | 5.8 | **99.2** | 48.0 | 37.0 | 6.4 | **91.4** | 3034.2 | **190.6** | **2843.6** |
| 12 | Electrical engineering | 3.7 | 13.3 | 4.5 | **56.7** | 3.5 | 50.7 | 13.4 | **67.6** | 2315.2 | **124.3** | **2190.9** |
| 13 | Precision engineering, optics | 0.0 | 4.9 | 0.5 | **9.0** | 1.5 | 8.9 | 7.5 | **17.8** | 578.4 | **26.8** | **551.6** |
| 14 | Metal products | 2.7 | 17.7 | 2.2 | **41.4** | 56.0 | 8.3 | 12.5 | **76.7** | 1408.7 | **118.1** | **1290.6** |
| 15 | Stone and quarrying | 0.2 | 1.3 | 0.0 | **57.1** | 0.6 | | 1.4 | **2.0** | 1737.7 | **59.1** | **1678.6** |
| 16 | Ceramics | 4.4 | 0.2 | 2.1 | **11.5** | 6.0 | | 2.3 | **8.3** | 342.3 | **19.7** | **322.6** |
| 17 | Glass | 0.8 | 0.3 | 4.2 | **14.3** | 4.0 | | 2.6 | **6.6** | 354.2 | **20.8** | **333.3** |
| 18 | Saw mills, timber processing | 2.5 | 0.0 | 1.0 | **25.1** | 5.0 | | 0.2 | **5.2** | 891.1 | **30.3** | **860.8** |
| 19 | Manufactured wood products | 8.6 | 3.8 | 0.7 | **46.9** | 90.3 | 9.1 | 4.1 | **103.5** | 2594.0 | **150.4** | **2443.7** |
| 20 | Chemical industry | 0.2 | 9.1 | 8.5 | **142.4** | 28.0 | | 18.9 | **46.9** | 3119.3 | **189.3** | **2930.0** |
| 21 | Chemical-technical industry | 0.2 | 8.8 | 0.0 | **31.1** | 47.6 | | 2.9 | **50.5** | 1277.4 | **81.6** | **1195.8** |
| 22 | Rubber and asbestos manufacture | 0.0 | 1.1 | 3.6 | **31.0** | 20.0 | | 1.0 | **21.0** | 517.3 | **52.0** | **465.3** |
| 23 | Manufacture of paper and paper products | 0.2 | 2.4 | 2.6 | **45.9** | 2.1 | | 3.8 | **5.9** | 1156.4 | **51.7** | **1104.7** |
| 24 | Printing and duplicating | 1.0 | 2.8 | 4.8 | **24.2** | 36.0 | | 2.8 | **38.8** | 1957.1 | **63.0** | **1894.1** |
| 25 | Leather industry | 0.0 | 0.4 | 2.2 | **28.2** | 109.6 | | 4.5 | **114.1** | 2066.8 | **142.3** | **1924.5** |
| 26 | Textiles | 0.0 | 2.2 | 5.8 | **220.9** | 210.7 | | 17.8 | **228.5** | 7858.1 | **449.4** | **7408.7** |
| 27 | Clothing | 0.4 | 7.5 | 0.6 | **10.5** | 182.0 | | 3.9 | **185.9** | 2883.0 | **196.4** | **2686.6** |
| 28 | Edible oil and fats | 0.0 | 0.0 | 3.3 | **45.2** | 56.0 | | 0.6 | **56.6** | 1702.7 | **101.8** | **1600.9** |
| 29 | Spirits industry | 0.0 | 0.0 | 6.1 | **23.3** | 7.0 | | 0.0 | **7.0** | 853.4 | **30.4** | **823.0** |
| 30 | Food, beverages and tobacco | 0.7 | 13.6 | 38.3 | **165.3** | 759.5 | | 3.8 | **763.3** | 14249.3 | **928.6** | **13320.7** |
| 1-40 | **Transport costs** | **27.8** | **235.2** | **107.3** | **1741.1** | **1812.5** | **201.4** | **184.6** | **2198.5** | **169027.6** | **3939.7** | **165087.9** |

*Source:* see text.

We followed the same procedure for transport services (see column 2 in Table 6-1). In contrast to wholesale services, however, we applied the same percentage without any exception. In this case, we did not only rely on the summary account of the StRA solely but further made use of additional sources: firstly, we applied input-output experience of our own and secondly, we drew on substantial information gained from working sheets of the Statistical Office for 1929 and 1933.[309] In this manner, we reduced the percentages of intrasectoral deliveries and we took into consideration both the size structure of the purchasers and the type of commodities transported. Multiplying the assumed percentages row-wise by the figures in quadrant I of the preliminary input-output table at purchasers' prices, resulted in a so-called transportation matrix (Table 5-3). We deducted the elements of the transportation matrix cell by cell from quadrant I of the preliminary input-output table and transferred the column totals of the deducted elements to row 35 in the input-output table (see step (7) in the introductory synopsis and column 4 in Table 5-1).

By combining both calculations and by deducting the wholesale matrix and the transportation matrix from the intermediate part of the input-output table at purchasers' prices (see step (8) in the introductory synopsis) we got quadrant I of the preliminary input-output table for Germany in 1936 at producers' prices.

### 5.2. From the preliminary to the final input-output table for Germany in 1936 (balancing)

The usually cumbersome and time consuming process of balancing the preliminary matrix is the last step of compiling the final version of any input-output table.

Firstly, we supplemented quadrant I of the preliminary input-output table at producers' prices by quadrant II (final demand) and by quadrant III (components of GDP) and by gross production (total outputs = total inputs). Secondly, when comparing the originally calculated gross production values with the corresponding values derived from the specific input-output compilation not all the sums of the columns and rows matched completely. The deviations or inconsistencies – normal for preliminary input-output tables – had to be removed. According to input-output terminology such a removal of positive and negative differences is described as balancing.

Usually, the balancing is done mathematically based on iterative procedures.[310] In contrast to this mechanical approach, we balanced the preliminary input-output table manually because we were well aware of the strengths and weaknesses of our calculations and estimates. For that reason, we sometimes went back to the basic statistics to revise inconsistent estimates. By revising the figures of the private consumption matrix, we got a new compilation of this category of final demand.[311] Then, we removed inconsistencies in quadrant I of the table by using the changes of inventories, often as residual. Major re-groupings were necessary with respect to industrial branches producing and using iron, steel and metal products: based on a probably minor arbitrary allocation of the original 1936-census data, we eliminated

309 *Stäglin*, Input-Output-Rechnung; BA R3102 2705, F 192-194.

310 *R. Stäglin*, Estimating an Input-Output Matrix with Incomplete Information, in: Konjunkturpolitik, 2/3, 1970, pp. 145-153.

311 The revision of private consumption matrix is described in chapter 4.5.1.

incompatibilities.[312] Further corrections had to be made for electricity, gas and water, for transport and communication, and for other services. It was necessary to reduce the intermediate output of electricity, gas and water proportionally by balancing it partially against wholesale trade output. The intermediate output of transport and communication delivered to all service sectors had to be augmented considerably in order to be consistent with the higher gross production. In other services, we had to correct the intermediate output delivered to 18 sectors in the opposite way, i.e. we had to reduce the output figures by amounts between 13 m RM and 320 m RM.

*Appendix 1*: Classifications of the input-output table for 1936

| | **Aggregated classification** | | **Disaggregated classification** | | **Aggregated classification** | | **Disaggregated classification** |
|---|---|---|---|---|---|---|---|
| 1 | Agriculture, forestry, fishing | 1 | Agriculture | 7 | Timber, paper, leather, textiles | 18 | Saw mills, timber processing |
| | | 2 | Forestry, fishery | | | 19 | Manufactured wood products |
| | | | | | | 23 | Manufacture of paper and |
| 2 | Energy, mining | 3 | Mining | | | | paper products |
| | | 4 | Fuel industries | | | 24 | Printing and duplicating |
| | | 32 | Electricity, gas and water | | | 25 | Leather industry |
| 3 | Chemicals, building materials | 15 | Stone and quarrying | | | 26 | Textiles |
| | | 16 | Ceramics | | | 27 | Clothing |
| | | 17 | Glass | 8 | Food, beverages and tobacco | 28 | Edible oil and fats |
| | | 20 | Chemical industry | | | 29 | Spirits industry |
| | | 21 | Chemical-technical industry | | | 30 | Food, beverages and tobacco |
| | | 22 | Rubber and asbestos | | | | |
| | | | manufacture | 9 | Construction | 31 | Building and construction |
| 4 | Iron and steel, non-ferrous | | | | | | |
| | metals | 5 | Basic iron and steel products | 10 | Trade | 33 | Wholesale trade |
| | | 6 | Non-ferrous metals | | | 34 | Retail trade |
| | | 7 | Foundries | 11 | Transportation, communication | 35 | Transport and communication |
| | | 8 | Fabricated iron and steel | | | | |
| | | | products | 12 | Government | 38 | Government |
| 5 | Constructional steel, | | | | | | |
| | machinery, vehicles | 9 | Machinery | 13 | Other services | 36 | Banking and insurance |
| | | 10 | Constructional steel | | | 37 | Dwelling |
| | | 11 | Vehicles and aerospace | | | 39 | Other services |
| 6 | Electrical engineering, | | | | | | |
| | hardware, metal goods | 12 | Electrical engineering | | | 40 | Domestic services |
| | | 13 | Precision engineering, optics | | | | |
| | | 14 | Metal products | | | | |

*Note*: For the aggregated input-output table see *Fremdling/Stäglin*, Reconstruction 2012 and *idem*, Reconstruction 2013.

Any input-output table is subject to certain necessary conditions which have to be observed when computing the balance: first of all, the identity of gross production (total input = total

312 To some extent, the questionnaires themselves inevitably contained wrong details and assignments. Quite a number of people of the StRA were engaged to inquire corrections and details from the respective firms by letters and phone calls.

output) of every production sector. Secondly, the matching of quadrant II of the input-output table (expenditure side of national accounts) with quadrant III (income side of national accounts). In order to comply with these conditions we finally adjusted labour income by increasing the figure for building and construction together with decreasing the figures for wholesale trade, retail trade and dwelling.

The consistent final input-output table for Germany in 1936 at producers' prices is depicted in Table 2-1.

## Annex 1: Labour force (employment)

Figures of the labour force are not an integral part of compiling an input-output table. As we frequently had to draw on employment figures for generating the desired figures of our input-output table we decided to gather a comprehensive documentation of German labour force in 1936. Our figures of employment in 1936 are classified according to the economic branches covered in our input-output table. A thorough discussion of the sources as well as the calculation and estimation procedure is presented together with the calculation of inputs and gross production values. The following section firstly presents an overview of German labour statistics during the 1930s in general. Secondly, it refers to those sectors/branches for which the corresponding labour statistics were derived independently from the input-output values and finally it discusses the figures of total employment.

The most important comprehensive sources for the labour force of Germany are the periodic censuses on workplace (Gewerbe- or Betriebszählungen) and occupation (Berufszählungen). During the 1930s, these censuses were conducted by the German Statistical Office for the years of 1933 (1935[313]) and 1939. In 1933, the territory covered excluded the Saar region. After the inclusion of the Saar into the German Reich, this census was also taken in this region for 1935. In 1939, Germany and thus the census too comprised also Austria and the Sudetenland. Detailed results of these censuses were published in numerous volumes of the Statistics of Germany (Statistik des Deutschen Reichs, StR).[314] Summary accounts can be found in the Statistical Yearbooks and other periodical publications of the StRA (Statistisches Jahrbuch für das Deutsche Reich, StJR,[315] Vierteljahrshefte zur Statistik des Deutschen Reichs, VJ and Wirtschaft und Statistik, WS). After the war, the US-force (OMGUS) initiated detailed statistical compilations based on original sources.[316]

It is often maintained that the occupational census is not suitable for allocating the labour force to their proper workplaces.[317] Accordingly a carpenter working in the metal trade would be assigned to this industry by the workplace census whereas the occupational census would classify him as working in wood-processing. Hoffmann et al. insinuate an even more pro-

313 In conformity with the plebiscite in January 1935, the *Saarland* once again became part of Germany.

314 Concerning the 1939 census, the StRA did not publish all the planned volumes: e.g. volume 567 with the *Reichsergebnisse der nichtlandwirtschaftlichen Betriebsstätten* (results of the non-agricultural workplaces for the entire Empire).

315 Final results of the occupational census, split up for German territories (e.g. federal states), were published on a rather high level of aggregation, however (i.e. *Wirtschaftsabteilungen*, for sections such as agriculture, industry/crafts, services), see *StJR,* 1941/42, pp. 54-65.

316 *OMGUS*, StH1946; *Länderrat,* StH1949.

317 *Hoffmann et al.*, Wachstum, pp. 180-182.

nounced deviation for white-collar workers. Since they aimed at matching their time-series of economic activity with appropriate labour inputs they relied on the workplace censuses wherever possible. They referred to the occupational census only when they lacked information from their preferred source. In their assessment of both types of German census, however, Hoffmann et al. are grossly mistaken. In the introduction to the occupational census of 1933, however, the German Statistical Office explicitly states that on the survey date[318] of the census, the labour force was definitely assigned to their place of work as were the unemployed to their last former workplace.[319] The same holds true for the occupational census of 1939.[320] The coverage of the occupational census is comprehensive and consistent, because it also comprises the unemployed (not for 1939, however) as well as the workers in agriculture and in public services.[321] Furthermore, second jobs are dealt with separately, which especially mattered in agriculture. By distinguishing between the two employment categories, double counting of the first job was avoided. For the desired estimations and proxies of the labour force in 1936, we drew both on the occupational and workplace censuses of 1933 (1935) and 1939 if direct or feasible indirect evidence was not available. The 1936 employment figures were derived by linear interpolation between the benchmark years of 1933/35 and 1939.

The territorial changes between 1935 and 1939 were taken into account by adjusting the labour force numbers of the censuses appropriately. The *Saar* figures[322] were included whereas the respective data on Austria and the Sudetenland were excluded. The planned volume[323] with aggregated and sufficiently detailed figures of the workplace census 1939 was never published, thus we drew on data for the German federal states[324] and aggregated them for Germany in the boundaries of 1937 *(Altreich*). The aggregate figures of the occupational census of 1939[325] were adjusted by subtracting the numbers for Sudetenland, Wien and Alpen-Donau.[326]

Changes in the labour force in total numbers and their allocation depended on trends and the course of the business cycle. Specific trends were due to population growth, the changing number of foreign workers, the relative rise or decline of particular economic sectors and industrial branches and the creation of a large military force and mass organizations of semi-military activities (SA, SS) or semi-enforced labour (Arbeitsdienst, Pflichtjahr for women). During the course of the business cycle and due to some of the described trends, unemployment decreased significantly.

Both occupational censuses used people living in Germany (Wohnbevölkerung) as the starting point, thus including foreign workers. The official published results of the 1939-census, however, give figures for the permanent population only (Ständige Bevölkerung) and for the

318 16.06.1933, *StR,* 458, p. 1; 25.06.1935, *StR,* 470, II; 17.05.1939, *StR,* 556, I.
319 See also *StR*, 453 II, p. 19.
320 On this point see the thorough assessment of the German occupational censuses by *R. Hohls/H. Kaelble*, Die regionale Erwerbsstruktur im Deutschen Reich und in der Bundesrepublik 1895-1970, St. Katharinen 1989, p. 63; see also *R. Plate,* Die Berufsstatistik, in: *F. Burgdörfer (Ed.)*, Die Statistik in Deutschland nach ihrem heutigen Stand (Ehrengabe für Friedrich Zahn), Berlin 1940, pp. 655 f.
321 The 1933(35) workplace census did not comprise public and private services.
322 *StR,* 462, 470.
323 *StR,* 567.
324 *StR*, 568.
325 *StR*, 556.
326 *StR*, 557, H 6, 27, 28.

labour force (Erwerbspersonen). With this concept of *Erwerbsperson* the Statistical Office accounted for people in work (Erwerbstätige) and those unemployed (Erwerbslose), which were available for the labour market.

Drafted soldiers and semi-enforced labourers, however, were excluded from the groups of *Ständige Bevölkerung* and *Erwerbspersonen*. Compulsory military service was reintroduced in 1935. The *Reichsarbeitsdienst*, a compulsory or semi-enforced labour service of young women and men from 1934/35 onwards, continued the publicly sponsored voluntary labour service introduced in 1931 for unemployed young people.[327] Professional soldiers were separately reported for 1933 only. Otherwise, they were incorporated in both censuses under public services. The semi-military staff, i.e. civilians working for the army, was dealt with accordingly (1939).

The unemployed played a major role in the 1933/35-census. In 1939, they did not matter anymore and thus the Statistical Office did not report separate figures for them.[328] As a percentage of the total dependent labour force, unemployment made up 26.3% in 1933, 8.3% in 1936 and 0.6% in 1939.[329] In 1939, drafted soldiers and compulsory service personnel of young women and men for the *Arbeitsdienst* were counted as well. The respective figures, however, were kept secret.

Further data on employment are available from the *Statistik der Gewerbeaufsichtsbehörden* and the *Statistik der Berufsgenossenschaften*: every two years, the authority for inspecting non-agricultural business (Gewerbe) counted business units with five or more people at work. Unfortunately, these figures are not available for the years of the occupational census and the workplace census (1933 and 1939), but only for 1932 (without Baden), 1934, 1936 and 1938. The firms (Betriebe) were classified according to the delimitation of the workplace census, however, only units with five and more people employed were registered at all.[330] Thus this type of employment statistics is not helpful to complement the 1936 industrial census. The *Statistik der Berufsgenossenschaften* was based on a compulsory insurance against industrial accidents (betriebliche Unfälle) introduced by Bismarck as part of the German social security system. It was handled through co-operatives self-administered by the employers (Berufsgenossenschaften). Not all workers of an enterprise were covered, though; a fixed, rather high income determined the exemption. The yearly statistics on the number of employees covered are not directly comparable with the workplace censuses. The figures, however, were frequently used for interpolation between the census years, sometimes in combination with the figures of the business inspection.[331] We did not use either type of employment statistics. Table A1 puts forward the employment figures in 1936, classified according to the economic branches covered in our input-output table.

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327 *K.K. Patel*, Soldiers of Labor, Labor Service in Nazi Germany and New Deal America, 1933-1945, Cambridge 2005, pp. 121 ff.

328 *StR*, 555, p. 23.

329 These calculations are based on the reports of health insurance companies and job centres. For the underlying figures, see *StJR*, 1941/42, pp. 410, 426.

330 *WS,* 1938, pp. 310-13.

331 *Hoffmann et al.*, Wachstum, p. 191; *M. von Lölhöffel*, Zeitreihen für den Arbeitsmarkt: Lohnsatz; Beschäftigungsfälle, Arbeitskosten und Arbeitsstunden (1925 bis 1938 und 1950 bis 1967), in: Ifo-Studien 20, 1974, p. 48.

*Table A1*: Labour force in Germany in 1936

| | | People employed (1000) | Share in % |
|---|---|---|---|
| 1 | Agriculture | 9219.6 | 28.7 |
| 2 | Forestry, fishery | 168.6 | 0.5 |
| 3 | Mining | 579.2 | 1.8 |
| 4 | Fuel industries | 36.7 | 0.1 |
| 5 | Basic iron and steel products | 205.7 | 0.6 |
| 6 | Non-ferrous metals | 76.6 | 0.2 |
| 7 | Foundries | 179.1 | 0.6 |
| 8 | Fabricated iron and steel products | 453.4 | 1.4 |
| 9 | Machinery | 572.8 | 1.8 |
| 10 | Constructional steel | 199.4 | 0.6 |
| 11 | Vehicles and aerospace | 402.9 | 1.3 |
| 12 | Electrical engineering | 309.8 | 1.0 |
| 13 | Precision engineering, optics | 120.5 | 0.4 |
| 14 | Metal products | 273.7 | 0.9 |
| 15 | Stone and quarrying | 375.0 | 1.2 |
| 16 | Ceramics | 92.1 | 0.3 |
| 17 | Glass | 77.3 | 0.2 |
| 18 | Saw mills, timber processing | 126.7 | 0.4 |
| 19 | Manufactured wood products | 873.6 | 2.7 |
| 20 | Chemical industry | 177.7 | 0.6 |
| 21 | Chemical-technical industry | 87.6 | 0.3 |
| 22 | Rubber and asbestos manufacture | 58.1 | 0.2 |
| 23 | Manufacture of paper and paper products | 100.2 | 0.3 |
| 24 | Printing and duplicating | 345.4 | 1.1 |
| 25 | Leather industry | 433.1 | 1.4 |
| 26 | Textiles | 1142.9 | 3.6 |
| 27 | Clothing | 776.6 | 2.4 |
| 28 | Edible oil and fats | 37.9 | 0.1 |
| 29 | Spirits industry | 31.5 | 0.1 |
| 30 | Food, beverages and tobacco | 1709.0 | 5.3 |
| 31 | Building and construction | 1936.2 | 6.0 |
| 32 | Electricity, gas and water | 180.9 | 0.6 |
| 33 | Wholesale trade | 1002.0 | 3.1 |
| 34 | Retail trade | 1957.3 | 6.1 |
| 35 | Transport and communication | 1581.1 | 4.9 |
| 36 | Banking and insurance | 324.6 | 1.0 |
| 37 | Dwelling | 70.0 | 0.2 |
| 38 | Government | 2292.0 | 7.1 |
| 39 | Other services | 2300.0 | 7.2 |
| 40 | Domestic services | 1227.7 | 3.8 |
| **1-40** | **Total** | **32114.5** | **100.0** |

*Source*: see text.

**Results and calculation/estimation procedures for selected service branches**

Labour statistics were derived independently from the input-output values for the following branches: Banking and insurance (36); Dwelling (37); Government (38) and Other services (39).

*Branch 36: Banking and insurance*
People working in this branch in 1936 were estimated at 324,626.
Sources: Workplace censuses (XXVII; 26, 27) of 1933/35 and 1939.[332]
In 1933/35 this category (XXVII: Geld-, Bank- und Börsen- und Versicherungswesen) comprised 398,530 people with 84,032 (21%) of these working in the administration of industrial enterprises, however (XXVII 3. Gewerbliche Verwaltungsbetriebe). In 1939, in the corresponding categories (26 and 27) 424,197 people were registered. A linear interpolation between both benchmarks with the percentage deduction (of 21%) yields the estimated figure for 1936.

*Branch 37: Dwelling*
We assumed that at least 70,000 people worked in this branch in 1936. The workplace censuses obviously registered incomplete numbers with 14,715 people in 1933/35 (XXVI 2, Immobilienwesen) and 27,011 people in 1939 (25.05.2000, Siedlungs- und Terraingesellschaften). The occupational census for 1933/35 gives 67,623 people working for *Wohngewerbe (Verwaltung einschl. Vermittlung)*.[333] There is no corresponding entry in the occupational census of 1939.

*Branch 38: Government*
Other than the corresponding census in 1939 (category D: Öffentlicher Dienst und private Dienstleistungen)[334] the workplace census of 1933/35 did not count people employed in the civil service. Thus we had to rely on the occupational census, which provided figures for both census years. Unfortunately, there is no clear-cut distinction between the public (civil) service and privately organised service occupations in the published material of the censuses. In order to allocate the census figures to people in public services some arbitrary decisions were necessary.

To a large degree, people working for the ruling party (NSDAP) and their semi-military mass organizations (SA, SS) in 1939 were counted as employees of governmental bodies. In 1941, a remarkable article published in Wirtschaft und Statistik (WS) discussed the results of the 1939 census. This official organ of the German Statistical Office (StRA) even put forward that the increase of personnel working in public services was mainly due to party members whereas the number of people in performing public administration duties had remained constant.[335] Table A2 puts forward the categories for compiling the labour force in public services. 2.7 m, thus 75.7 per cent of the 3.6 m people (Erwerbspersonen) classified under public and private services in 1939 (W.-Abt. 6: Öffentlicher Dienst und private Dienstleistungen (ohne häusliche Dienste)) we assigned to the government. Amounting to 68 per cent of the 2.7 m *Erwerbspersonen* (category W.-Abt. 5: Öffentlicher Dienst und private Dienstleistungen (ohne

332 *StR*, 470.4; *StR*, 568.
333 *StR*, 470.2, p. 32, category 517.
334 See *StR*, 568.
335 *WS,* 1941, pp. 357 f.

häusliche Dienste)) in 1933/35 this groups' share was significantly lower. This supports the above statement in Wirtschaft und Statistik.

*Table A2*: German labour force in public services, people employed

| Category of StR | | 1933/35 | 1939 |
|---|---|---|---|
| 511/611 | Reichs-Landes-Gemeindeverwaltung, öffentliche Rechtspflege, NSDAP | 703986 | 903470 |
| 612 | Öffentliche Arbeits- und Wirtschaftslenkung | | 150941 |
| 614 | Reichsarbeitsdienst (einschl. Reichsarbeitsdienst für die weibliche Jugend)* | | 63498 |
| 514/615 | Schul- und Bildungswesen | 396077 | 371609 |
| 621 | Volkspflege und Fürsorge | | 150947 |
| 622 | Krankenpflege (2/3 of this category) | | 267933 |
| 52 | Gesundheitswesen und hygienische Gewerbe (2/3of this category) | 504459 | |
| 53 | Wohlfahrtspflege und soziale Fürsorge | 105274 | |
| 626 | Straßenreinigung, Kanalisation, Müllabfuhr, Desinfektionswesen | | 36599 |
| 512/613 | Wehrmacht (einschl. Marinewerft und Wehrmachtslazarette)** | 147211 | 782017 |
| **Total number** | | **1857007** | **2727014** |

*Remarks*: Linear interpolation for 1936: 2 292 011 people, * without compulsory people, ** professional soldiers and civil personnel.

*Sources*: *StR,* 470, *StR*, 556, 557.

Drafted soldiers and the compulsory service personnel made up of the young women and men of the *Arbeitsdienst* were counted in the 1939 census as well, the respective figures were kept secret, though. Thus these figures do not show up in our employment figure for the government. In order to get an idea of the size of this personnel under the supervision of the government some patchy evidence is presented.

According to *Petzina et al.*[336] 1.165 m people (of which 220,000 women) were serving (Wehr- und Arbeitsdienstpflichtig) as drafted soldiers and performing compulsory *Arbeitsdienst* in 1939. Unfortunately, no information is given as to the source. Schildt estimated that 1.3 m people were *dienstpflichtig* in 1939.[337] He calculated this figure by subtracting the permanent (ständige) from the residential population (Wohnbevölkerung).[338] Applying the same method, as Schildt did, yields the following results:

1939 *altes Reichsgebiet* (17.5.1939): *Wohnbevölkerung* 69,316,526
1939 *altes Reichsgebiet* (17.5.1939): *Ständige Bevölkerung* 68,126,018
Thus those serving *Dienstpflichtige* 69,316,526 – 68,126,018 = 1,190,508.[339]

Inclusive of the nearly 800,000 professional soldiers and civilians working in the army (see Table A2) about two million people were engaged in military duties or other compulsory

336 *Petzina et al.*, Sozialgeschichtliches Arbeitsbuch, p. 54.
337 *G. Schildt*, Das Sinken des Arbeitsvolumens im Industriezeitalter, in: GG 32, 2006, p. 133.
338 1939 Germany in the bounderies of 1937 (Altreich): *Ständige Bevölkerung* 68.128 m people (definition: residential population (Wohnbevölkerung) without drafted soldiers or compulsary service *Arbeitsdienst* and semi-enforced work of young women („ohne die ihrer Dienstpflicht genügenden Soldaten und Arbeitsmänner und ohne die Arbeitsmaiden", source: *WS*, 1940, p. 334)).
339 Source: *Länderrat,* StH1949, pp. 17, 29.

services in the German territory within the boundaries of 1937 in May 1939. A few months later, World War II started with the German invasion in Poland.[340]

We do not have comparable reliable figures for 1936. In March 1935, Germany reintroduced compulsory military service, although forbidden according to the Versailles Treaty. It was planned for the army to comprise 36 divisions with 580,000 soldiers during peace time.[341]

Semi-enforced labour (Arbeitsdienst, Pflichtjahr for women) started on 1.10.1935. In 1936/37, this workforce was planned to comprise 230,000 men. The labour service of women remained small, about 10,000 at any time around 1936, whereas more than 200,000 men were active before 1936.[342] In 1936, the actual workforce included between 183,968 (February) and 206,648 (April) men and between 9,508 (October) and 12,186 (April) women. They were mainly employed cultivating the land (Landeskulturarbeiten) and increasingly for the harvest (Einsatz bei landwirtschaftlichen Erntenotständen).[343]

*Branch 39: Other services*

Within this remaining category, the largest single group comprised people employed in restaurants, pubs, catering trade, hotels etc. (Gaststättenwesen). In line with the workplace and the occupational censuses of 1933/35 and 1939, we assumed that in 1936 about 800,000 people worked in this sector (see Table A3).

*Table A3*: German labour force of the restaurant sector/ Gaststättenwesen

| | 1933/35 | 1939 | Census category | Sources |
|---|---|---|---|---|
| Workplace census | 790550 | 847331 | XXIX/29.00.00 | *StR*, 462/568 |
| Occupational census | 722600 | 770663 | W.-Gruppe 58/45 | *StR*, 470/557 |

In addition to the restaurant sector, we estimated that in 1936 roughly 1.5 m people were employed within the remaining service branches not yet explicitly covered, e.g. numerous self-employed people or people working in various service establishments not run by governmental bodies. Unfortunately, the census categories do not provide a clear-cut separation between state and non-state service establishments or occupations (see the discussion and compilation of the civil service labour force). We thus came to a figure of 2.3 m people in the category we titled "other services" including the restaurant sector.

An independent check of this figure can be made by comparing the total labour force of 29.814 m without "other services" covered in our input-output table. There the estimated total 1936-labour force of 32.014 m is based on the comprehensive figures of the occupational censuses of 1933/35 and 1939. The difference of 2.2 m people employed matches the 2.3 m people in our category of "other services", given the discussed error margin (see the discussion of the estimated total labour force for Germany in 1936).

340 Just before the outbreak of the war the army comprised 52 divisions and one brigade of the cavalry whereas the air force made-up 370 000 soldiers (*Boelcke*, Kosten, p. 27).
341 In spring 1935, armed forces counted 280 thousands of men (*Ibid.*).
342 *Patel*, Soldiers, pp. 106, 137 ff.
343 *WS,* Reichsarbeitsdienst, pp. 126-130.

### Total Labour Force

For both census years 1933 (1935 for the Saarland) and 1939, only the occupational censuses covered the entire work force. The labour force is based on the category of *Erwerbspersonen*, thus people in work (Erwerbstätige) and those unemployed (Erwerbslose) which are however available for the labour market.

*Table A4*: Total employment in Germany

| | 1933/35 | 1939 | **1936** |
|---|---|---|---|
| Erwerbstätige | 26722852 | 34616590 | |
| Erwerbslose* | 5899258 | | |
| Erwerbspersonen | 32622110 | 34616590 | **33619350** |
| Source | *StR*, 470 | *StR*, 556, 557 | **Interpolation** |

Without compulsory military and other services (Arbeitsdienst)

*in 1939 unemployment was negligible and not accounted for (StR, 555, p.6)

A linear interpolation between both census years yields 33.6 m *Erwerbstätige* for 1936 (Table A4). If this figure is adjusted by the 1.6 m unemployed[344] in 1936 (yearly average) then as an estimation, 32 m people (Erwerbstätige: 33.619350 – 1.593 = 32.026350) were working in 1936. This figure is an approximation of the true amount of people at work in 1936, as the census data refer to one day in the year, whereas the unemployment figure is calculated as a yearly average. In 1933/35, the census reports 5.9 m people unemployed, whereas on a yearly average 4.8 m people were registered as unemployed with peaks in January and February of about six million.[345] In addition, one has to keep in mind that the labour force data related to our input-output table (in total 32,114,459 people) are also not based on exactly the same reference points in time, and they result from somewhat different interpolation methods and different sources.

Thus both methods, the bottom-up approach pursued for the 40 branches in the input-output table and the interpolation of the aggregate figures, yield the same result of 32 m people employed in 1936.

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344 StJR, 41/42, p. 426.
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## Glossary

| | |
|---|---|
| BA | Bundesarchiv Berlin-Lichterfelde, Federal Archive |
| COICOP | Classification of Individual Consumption by Purpose |
| DIW | Deutsches Institut für Wirtschaftsforschung, German Institute for Economic Research |
| ESA | European system of accounts |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| GGDC | Groningen Growth and Development Centre |
| GVA | Gross Value Added |
| IfK | Institut für Konjunkturforschung, Institute of Business Cycle Research, later DIW |
| M | Mark |
| m | Million |
| NSDAP | Nationalsozialistische Deutsche Arbeiter-Partei |
| OMGUS | Office of Military Government for Germany (US) |
| RM | Reichsmark |
| RWP | Reichsamt für Wehrwirtschaftliche Planung, Office for Military-Economic Planning |
| SA | Sturmabteilung, organisation of the NSDAP |
| SAEG | Statistisches Amt der Europäischen Gemeinschaften, Statistical Office of the Countries of the European Community |
| SNA | System of National Accounts |
| SS | Schutz-Staffel, paramilitary organisation of the NSDAP |
| StBA | Statistisches Bundesamt, Federal Statistical Office |
| StH1946 | Statistisches Handbuch von Deutschland, Statistical Handbook of Germany 1946 |
| StH1949 | Statistisches Handbuch von Deutschland 1928-1944, Statistical Handbook of Germany 1928-1944 |
| StJR | Statistisches Jahrbuch für das Deutsche Reich, Statistical Yearbook of Germany |
| StJB | Statistisches Jahrbuch für die Bundesrepublik Deutschland, Statistical Yearbook of the Federal Republic of Germany |
| StRA | Statistisches Reichsamt, German Statistical Office |
| StR | Statistik des Deutschen Reichs, Statistics of Germany |
| VH | Vierteljahrshefte zur Statistik des Deutschen Reichs |
| WS | Wirtschaft und Statistik |

**Rainer Fremdling and Reiner Staeglin: An Input-Output Table for Germany in 1936: A Documentation of Results, Sources and Research Strategy**

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*Abstract*

In the following, we present the earliest input-output table for Germany: It covers 40 economic branches, five final demand categories and five primary inputs. The symmetric table for 1936 is com-

pletely based on original statistical data and does not rely on separate supply and use tables. The core of our endeavour is based on the German industrial census of 1936.
Originally, this census and its forerunner of 1933 had especially been designed by the German Statistical Office (StRA) to compile an input-output-table for Germany as a basis for managing the business cycle. In connection with rearmament, however, this endeavour was given up and instead, these data were used for constructing detailed material balance sheets, which served as a statistical basis for preparing the war. Based on these hitherto secret records and additional statistical information, we fulfilled the original plan of the StRA of constructing the desired input-output table.
Government is treated as an intermediate sector and placed into quadrant I of the table. In quadrant II it appears with only one figure (government gross production minus fees for specific government services). Government is delimitated into three sub-sectors: public administration and other government services, military spending and social security. In addition, public investment for civilian purposes is assigned to gross fixed capital formation in quadrant II. Military expenditure, however, is treated as government consumption and not as investment.
The input-output table offers a new benchmark for gross domestic product (GDP) and thus production, income and expenditure of Germany in 1936. We found a comparably high level of GDP and a significantly higher mixed income/operating surplus which hints at exceptionally high incomes and hidden profits of the armament industry. Due to our unique production approach of calculating GDP these hidden profits were revealed.

Keywords: Historical National Accounts of Germany, Nazi-Recovery, German World War II Economy, Input-Output Table, Nazi-economy, Germany 1936, Historical National Accounts

JEL-Codes: C 67, C 82, N 54, N 64, N 74, P 44

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